A Clinical Lecture

ON

CHRONIC SPINAL MENINGITIS:

ITS DIFFERENTIAL DIAGNOSIS AND SURGICAL TREATMENT.

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THIS afternoon I desire to deal with a subject on which as yet I have published nothing, but on which I have been threatening to publish something for the last ten or twelve years. It is the question of operating in a group of cases which are apparently fairly common. For instance, without much trouble Dr. Grainger Stewart has collected (November, 1907) the records of 21 cases which I have operated upon. So it is a class of case which is met with fairly frequently, certainly more commonly than tumour of the spinal cord. It presents the same symptoms—except certain minutiae—as tumour of the spinal cord; indeed, these cases have usually been diagnosed as tumours of the spinal cord and transferred to the surgeon, and yet they are not tumours at all. They are cases of chronic spinal meningitis, the causation of which has yet to be finally determined. They yield to surgical treatment when ordinary medicinal treatment has failed. I do not mean to say that they all yield to surgical treatment—I wish they did—but so many do that it is quite clear that earlier diagnosis would have saved, in my opinion, the majority, if not all, of the cases.

Like all these subjects when a new clinical condition is recognized, many things are brought in under the same heading which do not belong to it at all; in fact, the very expression I have used—"chronic spinal meningitis"—would suggest to you at once that such a vague clinical expression must include a number of conditions which do not owe their existence to the same cause. The class of case I refer to you will recognize from my having said that they resemble tumour of the spinal cord. They are those in which an adult person—because I have only one case below the age of puberty—begins to complain of pain and progressive loss of power in the legs, with it may be also slight kyphotic curvature of the spine, and develops ultimately a progressive paraplegia that runs through the ordinary course and terminates fatally.

The first clear case of this kind which I met with was some ten years ago, when Sir William Gowers referred to me a gentleman who had complete paraplegia, who had a distinct but a very slight kyphotic curve of the dorsal vertebrae, and who, Sir William Gowers thought, was probably a case of caries and secondary paraplegia, which was commencing when he first saw the case but which was very advanced when the patient came under my care. I confess that, for my own part, I did not accept the diagnosis of caries, but I was unable at that time to substitute any other for it; and, inasmuch as the patient had compression paraplegia, I, of course, agreed to operate, from the general point of view of relieving the compression. But when I came to operate, I found that instead of the neural canal being narrowed by disease of the bone, it was narrowed because the theca of the cord was enormously distended and filled up the lumen of the canal. Further, on opening the theca, instead of finding a tumour inside, compressing the cord, I found nothing but a very considerable excess of cerebro-spinal fluid, and a cord that was rather shrunken. Being anxious lest there might be a tumour other than at the point exposed, I explored with a probe up and down the neural canal for a distance of 5 or 6 in. but found nothing. But inasmuch as the localization diagnosis of the upper limit of compression was quite clear, the symptoms corresponding to a lesion at the sixth dorsal root level, it was obvious there was nothing more to be done than to close the wound, and this I did. The patient made an ordinary recovery and gradually began to improve, until now, from having retired from the city, he has gone back to the city and is engaged in Stock Exchange work.

Such was the first case of the kind I have seen, and it attracted my attention very forcibly, because in the first instance an accurate diagnosis was completely wanting; and, secondly, because here was a condition which was getting worse under antisyphilitic remedies and every other kind of drug treatment, but the progress of which was completely stopped by laminectomy, freely opening the theca and washing out with mercurial lotion. The patient, as I say, got well, went back to work, and has remained well.

Without wearying you with details, I may say that I have seen a relatively large number of such cases, on most of which I have performed laminectomy and subdural mercurial irrigation. All the cases also which have been referred to me have been diagnosed at the time I have received them as tumour of the spinal cord or disease of the vertebral column. But naturally during ten years one becomes more wary, and I have for a long time shown that there are certain features in these cases which should lead to their being recognized as cases of chronic spinal meningitis and not tumour. That is the position which now deserves discussion. I would have raised this question long ago but for the fact that inasmuch as the first twenty operations were not followed by death, no anatomical examination of the condition was forthcoming.

In 2 cases, however, we have obtained the spinal cord. In one the operation had been completed, and six weeks after the wound healed the patient died suddenly from syphilitic myositis—probably of the atrioventricular bundle. In the other no operation was done, and the patient succumbed to the paraplegia. In both a meningo-gliosis (sclerosis) was found. The spinal cord, so often seen at the operations to be shrunken, was markedly contracted in a tabes case, and exhibited microscopically typical glial sclerosis.

I shall not take up your time by going into a critical examination of the accounts of chronic spinal meningitis which have been given by the classical neurological writers, although the clinical investigation of these cases needs a great deal of further work to render the description in the textbooks definite and practically accurate. The real matters of interest relate to the circumstances under which the condition arises, which can be relieved by surgery, what is the proper surgical treatment, and what is likely to be the result.

Of recent years similar cases have been described in America and in Germany. The first actually published[1] was one under the care of Drs. Spiller and Musser and operated upon by Dr. Edward Martin, the patient making an excellent recovery. In April, 1907, Professor F. Krause made an interesting communication[2] to the German Surgical Society, and described 6 cases (out of 22 referred to him as tumour cases) in which the hydrops and meningitis serosa spinalis were demonstrable as the cause of the paraplegia. The condition was determined in 2 of the cases by *post-mortem* examination. Krause quotes Dr. H. Schlesinger,[3] who described the condition anatomically in 1898 in a case of paraplegia with necropsy. Professor Oppenheim,[4] who had examined Krause's cases clinically and treated them medically, also regarded the disease as an extensive meningitis.

Since this lecture was delivered (July, 1907), there has been published a further brief communication from Dr. Spiller,[5] in which he again draws attention to the case published in 1903, and, after saying that the condition cannot be distinguished clinically from tumour of the cord, advises earlier surgical intervention.

The cases of parasitic and other cysts referred to in his argument with regard to the mechanical conditions of pressure do not elucidate further the nature of the cases under discussion, and therefore, in the short time at my disposal, I shall confine myself strictly to what Spiller calls "circumscribed spinal meningitis."

It will now be evident how closely these cases resemble instances of tumour of the spinal cord. I might take any one of the series of notes which I have before me and outline it. Let me take the last which we had, and which was put down on the notes here as "Spinal tumour, extramedullary." That is the diagnosis from the medical side, and it is as recent as July of this year (1907). So you see that up to the present time our diagnosis requires a good deal of perfecting. This patient is now in the convalescent home, so I regret I cannot show her to you.

She was a single woman, aged 40, without anything particular in the family history. There was a previous personal history of anaemia, but nothing in the nature of a serious illness until 1901. For the last ten years she had very heavy work as a dressmaker, with much standing and kneeling. Six years ago she had a severe attack of influenza, when she was ill for a month with pains all over her; and very soon afterwards she began to complain of pains in the right loin, worse on movement, and a feeling as if the muscles of the thigh were tightening. In drawing your attention to the fact that this case is referable to influenza as the probable cause of the meningitis, I would remind you of the cases of meningitis described in 1890 and 1891 by Horatio Wood of Philadelphia, because several of these cases have appeared now to be residual cases of such spinal meningitis as was originally described by Wood. The pains spread gradually to the front and back of the right thigh, and during the last twelve months they have caused painful cramping and twitching of muscles of the right leg. The right toe often cocks up involuntarily with the pain. Ultimately, therefore, the pain in this case has affected the whole of the right leg, having begun in the right groin. It involves a diffuse area, one which is supplied by several nerves; there is no particular nerve-root distribution which is involved, but the whole limb is in pain, and can be shown on a chart. I invite your attention to this point first, because this I consider to be the most valuable among the minutiae which serve to distinguish these cases from cases of spinal tumour. A tumour of the spinal cord commonly exhibits the symptom of pain as localized to one nerve root; it does not give you, as a rule, areas of pain which necessarily involve many nerve roots. If spinal tumour cases are examined minutely it will be found that in the large majority of them the pain begins at or near one nerve root, and to the distribution of that spot the patient will chiefly ascribe his or her pain. This chronic spinal meningitis, on the other hand, being a general condition, tends to affect diffuse areas painfully, exception being always made for the upper limitation of anaesthesia. (See below.)

We will now pass on. For two years or more there has been besides this pain marked tightness and numbness of both thighs, as if they were made of marble. During the last two years there has been slight dribbling on micturition, and during the same period the pain has been so severe that it limited freedom of walking, so that the patient could only take one step at a time in going up and down stairs. Four weeks ago there was severe pain in the small of the back. Many of these patients describe a painful area in the spine without necessarily exacerbation on movement. On admission the patient was a very stout, healthy-looking woman, with no indication of disease in the circulatory or alimentary systems, nothing abnormal in the cerebral nerves, or cranium or upper limbs. The pupillary reactions were equal and normal. So to the middle of the body there was nothing discoverable. There was slight wasting of the whole of the right leg and general weakness of the whole of the right leg—see how universal these symptoms are—some eversion of the ankle with weakness on dorsiflexion of the foot, and some extension of the hip. There was very considerable alteration of sensation. The alterations of sensation were these: that she had relative anaesthesia of the whole of the right limb and of the right hypochondriac region, the anaesthesia being to all forms of sensation as well as relative analgesia. The coexistence of analgesia and anaesthesia I always think is an extremely serious point to bear in mind in all spinal cases, because it carries with it the assumption that the spinal cord itself is centrally involved in the lesion, whatever it be. With regard to the deep reflexes, the knee-jerk was markedly diminished on the right side, present on the left, but both were, on the whole, diminished. I will come back to the question of the knee-jerks later. As regards the superficial reflexes on admission, the plantar reflex on the left side is flexor, but it is less definitely so on the right. When I examined her later I found she had an extensor response. The abdominal reflexes were present on the right and left. With regard to the sphincters, I have said already that there had been dribbling after micturition. There should have been added there a most important point, namely, that there was no trophic lesion whatever in the skin, nor apparently any tendency to decubitus. On testing her with pilocarpin to map out the deficiencies of the secretory system, for comparison with the tactile anaesthesia, according to the methods which I have demonstrated as useful for twenty years, there was found a very marked parallelism.

That is the story of a typical case. On operating at the level of the dorsal segment a marked degree of chronic meningitis was found and relieved. But such extremely marked localization, one side being apparently chiefly affected, would of course lead to the assumption that certainly one half of the cord must be primarily affected, and might carry with it the further assumption that the lesion was more probably a tumour than general meningitis. I wish to draw particular attention to this point at this stage, because all these cases, if you look into them carefully, present a certain degree of unilaterality by the time they come under our direct notice. In further illustration of this point I show you sections of the spinal cord of an interesting case, which was not treated surgically and died in the hospital a short time ago. In these specimens you will notice that there was a condition of things exactly parallel to what I have frequently observed—namely, a sclerotic condition of the cord, beginning below and creeping up the cord. As a matter of fact, all the lower part of the cord shows only the endogenous fibres preserved. When you look at it with the lens you see that the ascending degeneration has affected one side notably more than the other. Consequently, although it is put down as universal disease, it nevertheless has a distinctly unilateral pathological locus. So the fact that we find that most of these cases have a unilateral origin must be recognized at the onset, because it must not prejudice our opinion. Probably we are naturally inclined, when there is marked unilaterality in the symptoms, to jump to the conclusion that it must be tumour. But now, after this series of cases, it must be recognized that that is not the fact—that it may equally be this condition of chronic general meningitis.

Now as regards further details. First the quality of the pain. As I said before, pain is felt in one limb to begin with, and then it spreads to the other limb, and then up the back. It is generally said by the patient that the pain is in the substance of the limb, and it feels in the majority of cases like a tightening or drawing up, and most patients complain specially of the sensation of tightness. And while speaking on that point I may also draw your attention to the fact that sometimes they have in addition the typical girdle tightness or compression, a feeling as of a band around the middle of the body. With regard to the degree of the pain, it may be similar to that in tumour cases, in that it may be so severe as to prevent sleep.

With regard to ordinary sensation, we will refer to this under the heading of "hyperaesthesia and anaesthesia." With regard to hyperaesthesia, this patient whose case I have just recounted to you on some days had very marked hyperaesthesia over the whole leg, a condition of things which I have never seen in a tumour case, in which at the outset there would be either a marked zone of hyperaesthesia at the upper limit of the anaesthesia, or a similar area corresponding to the nerve root or roots on which the tumour was situated. But when there is hyperaesthesia over a large area, it ought always to suggest to you that a number of nerve roots or their central representation mechanisms are in a state of irritation, at any rate in a state of physiological hyperexcitability. So that the distribution of the hyperaesthesia in these cases is an important symptom as helping to correct the diagnosis.

With regard to tactile anaesthesia, none of these cases that I have seen yet have had absolute anaesthesia; it has always been relative, and sometimes it has been present only to a slight degree, though extending over a large area. Microscopically, in neither of the two cases in which we have been able to obtain a *post-mortem* examination so far were the nerve roots much affected. So it is easy to understand that there may be widespread paraplegia, and yet no absolute anaesthesia anywhere. Nor is there dissociation, for as this is a general affection of the roots altogether, all the fibres are affected, and therefore all forms of sensation—touch, temperature, etc.—are affected in greater or less degree.

Next, as regards efferent phenomena. First, with regard to movement. How do these patients become paralysed? They become paralysed first by a gradual sense of weakness coming on in the whole leg. You know that is a very common description given to you by patients who become paraplegic from tuberculous caries, because in that condition you get a kind of ischaemia of the spinal cord as a rule, and the whole machine, as it were, becomes weak, the conductivity of the whole cord becomes impaired, and therefore the patient says the whole leg is weak. So it is with these cases, where there is a general condition affecting the spinal cord and its roots, naturally the symptoms are grouped *en bloc*. As can be seen from these notes of the cases, a localized extra weakness of one joint, as for instance the ankle or the hip or the knee, may often be seen, but no restricted root paralysis—that is to say, paralysis of groups of muscles served by any one root. The general loss or diminution of the action of one joint involves the decadence of several segments of the spinal cord. Thus a gradual weakness which develops until at last the patients cannot stand. In a certain number of cases, even in a comparatively early stage, they complain of spasticity. So that some of these cases undoubtedly are diagnosed as instances of lateral sclerosis—that is, the old idea of lateral sclerosis; and when you come to examine the spinal cord in a very severe case you will find there is not only a lateral sclerosis, but a general sclerosis throughout the cord. The explanation of the sclerosis I will come to later.

With regard to the other efferent phenomena, I have already referred to and demonstrated that secretion is proportionately paralysed with the advance of the paraplegia. With regard to the vasomotor system, as a rule these patients show no vasomotor phenomena, quite unlike a bad case of compression paraplegia from caries or tumour, where vasomotor phenomena are more often observed. One limb may become oedematous, the joint may fill up with fluid—a so-called myelitic arthritis—and where at one stage the part may be crimson in colour, and as the paraplegia develops it may change into pallor, and, finally, in the last stage there may be obvious vasomotor contraction extremely marked with a shrunken dry skin. These meningitis patients do not present this picture at all; their skin looks very normal, and, as I said before, they show no tendency to trophic disturbance. Possibly at the very end they ultimately develop bedsores, like other paraplegics, but they have not the striking tendency to decubitus that an ordinary case of localized compression of the cord has. Before passing from the question of sensory troubles, especially in connexion with the nerve roots, I must refer to one private case which illustrates very strikingly the connexion between affection of the roots and this general affection of the membranes of the cord. The case was that of a lady, whom I saw with Dr. Ferrier originally, and who had complained of a severe pain in the heel—that is to say, in that branch of the posterior tibial nerve which supplies the skin of the heel. This pain was for many years treated as a functional pain, and the unfortunate family differences which followed only emphasized once more the extreme necessity of caution in diagnosing functional disease. One day she suddenly developed a peculiar outbreak of herpes in the distribution of the first and second lumbar roots—that is, a definite root distribution; and then it was naturally thought that the posterior tibial trouble was a peripheral neuritis. When I saw her with this herpetic eruption it was quite obvious that she had what appeared to be an affection of the whole nerve supply of the limb, but I did not recognize at the time that she was one of this class of case. However, the pain was so great and disabling that I suggested dividing the posterior roots of the first and second sacral nerves. This was not accepted by those in direction of the case, and for two years this patient went on, gradually walking less and less, until at last she was practically sitting in a chair all day long. Still, she had no paraplegic symptoms of the ordinary kind. It was then decided that she should be operated upon, and accordingly I exposed the theca of the spine over the lower end of the lumbar enlargement, in order to divide these two roots. As I then found the theca enormously distended, of course it was apparent that the case must be one of chronic spinal meningitis. On opening the theca a great rush of cerebro-spinal fluid occurred, the lumbar enlargement and the commencement of the cauda equina were covered with thick yellowish-white matted arachnoid, and yet, as above stated, the pain was limited to the first and second sacral area, and the herpes to the first and second lumbar. Thus, the intermediate roots apparently had not suffered sufficiently to cause symptoms. I divided the posterior roots of the first and second sacral nerves, and then followed out the treatment I advise in these cases, and irrigated out the subdural space thoroughly with 1 in 1,000 sublimate solution. She made a very good recovery, and now she walks five miles at a time, and has, of course, lost her pain. It is now three and a half years since the operation was carried out, and she is apparently in perfect health, a position which is, perhaps, partly due to spinal mercurial inunction, which I have had continuously carried out since the operation. But this is the only case of the whole series I have seen in which there was a herpes, in which there was any evidence of posterior ganglionic affection, or any evidence of such minute root localization, and I only dwell upon it because it is such a striking illustration how in these cases we can be deceived.

Now we come to the question of the part of the spinal cord affected in this condition. This certainly is a very interesting question. The two cases I have used as illustrations obviously began in the region of the cauda equina, and in the large majority of these 21 cases the mischief apparently began all over the lower half of the back of the cord, and the large majority of them, I find on going over the notes, have (in consequence of the need of exposing the highest segment of cord symptomatically involved) been operated on at a point somewhere between the fourth and ninth dorsal—that is to say, in the mid-dorsal region. This is interesting, because, of course, we know that for one reason or another the mid-dorsal region has been, certainly for seventy years, recognized to be the usual seat of so-called transverse myelitis—at any rate, it has been referred to that region without any explanation being forthcoming. Whether it commences—like this case, for instance, which begins about the lower part of the lumbar enlargement and gradually goes up the cord—or whether it attacks the lower half of the cord simultaneously, will probably not be found out for a long time. But, however that may be, by the time the case is referred for operation, the exploration must begin in or just below the mid-dorsal region, because in the majority of these cases the zone of anaesthesia extends from the sixth to the eighth dorsal nerve root.

With regard to the age of the patients, I have already said that, with one exception, they were all adults. This question of age has a very important bearing, first on the question of the causation of the mischief, and, secondly, on the prognosis. I will therefore deal now with these two points. We will speak of prognosis first, because that is relatively an easier point. As we have to deal with a chronic inflammatory condition, the prognosis simply depends on the usual rule, that if a patient is below middle life or at middle life recuperation is likely to be very good; if beyond middle life, it is likely to be very poor. The oldest case which I find I have operated upon was a private patient, a lady who was 60 years of age, and I am sorry to say she did not improve in the least. It was a very bad case; there was a great deal of pachymeningitis, and there was a depressing history of congenital disease. She only had one brother alive and "healthy." One brother had died of locomotor ataxy, and a sister, whom I saw, suffered severely from combined syphilitic sclerosis, and so on. I believe the fact that she did not improve was entirely due to her age. Turning now to the next point—namely, the cause of the condition—I have said that there is a considerable excess of cerebro-spinal fluid in these cases, and have referred to the thickening of the arachnoid and the matting of the nerve roots. Before we discuss further the pathological conditions, I ought perhaps to make reference to the collection of cerebro-spinal fluid in the neural canal as a clinical fact, and discuss with you whether it has any bearing on these cases. The cerebro-spinal fluid, of course, is secreted by the lining membrane of the cerebral ventricles, by the lining surface of the choroid plexus, and it is secreted at a rapid rate. Although it is secreted under pressure, it is thus manufactured quickly, and if the pressure is relieved by a little trephine opening connected with the

ventricles or other part of the cerebro-spinal system, it escapes in very large quantity. There are several other points connected with the physiology of the cerebro-spinal fluid which are of interest. The ependymal epithelium, which is flat in the ventricles, becomes columnar at the commencement of the aqueduct of Sylvius under the posterior commissure, and this fact, as Professor Dendy has shown, applies to all animals, and is especially marked in the mouse and animals as low in the scale as that. So it would seem to have some physiological significance, and he suggests that the cilia of these epithelial cells serve by accelerating the circulation of the cerebro-spinal fluid downwards. Of course the cerebro-spinal fluid as it is being secreted must be got rid of; it must flow out of the ventricles, and must pass into the cavities of the body. It has been shown that as it is manufactured high up, under positive pressure, it finds its way out along the lymphatics along the course of the nerve roots. That it has this circulation in the cord is proved first by the injection of coloured fluids into the ventricle, and also by such very interesting pathological cases as the one published last year by Dr. Barnes, where a growth in the ventricle was disseminated all the way down the central canal, showing that the virus was gradually carried down along this natural highway, as it were, by the stream of cerebro-spinal fluid.

As regards the spinal cord, we find that in these cases there is a large collection of cerebro-spinal fluid around the cord, and it is under great pressure, because in the first place it distends the dura mater, so that it almost fills the canal, and there is no impulse in the theca when it is exposed for laminectomy. Instead of the theca rising and falling with respiration and also indicating the pulsation of the heart, there is no movement in it whatever. When you open the ballooned theca the fluid jets out, and then, when the whole thing collapses, you can see that there is a normal active movement of the cord; so that, at any rate, by the time these cases come to operation it is obvious that this physiological relationship of the cerebro-spinal fluid has become very abnormal, and that instead of having a proper circulation you have stagnation. I do not want to push this point too far, because we know so very little about it. We know nothing from the experimental point of view beyond the effect on the spinal cord of persistent stagnation or accumulation of cerebro-spinal fluid, but it is suggestive. And, seeing that these patients who do improve may improve so markedly simply from the free opening of the theca *plus* washing out—the effect of which I will discuss presently—it is very difficult to get away from the idea that this pressure does play an important part, and that consequently some of the benefit of surgical treatment is to be attributed to getting rid of such pressure.

The spinal cord, being subjected to this pressure, necessarily must undergo some ischaemic changes; and here we are in a very great difficulty, because we have no pathological material to enable us to say whether the changes which we can find in the only two cases which have died during these years are to be looked upon as truly representative because they were both cases in an advanced degree of the disease.

Causation.

That brings me to the next consideration—namely, the causation of the meningitis. In one of the cases just referred to certainly, and in both to some extent, there would be no doubt that syphilis was the cause; and, under those circumstances, one would say naturally that the sclerosis of the cord which was so very clear (see below), was a primary syphilitic sclerosis.

The point of chief interest is the condition of the cord in an average case. In every case when the theca has been opened and fluid allowed to escape the cord has presented a shrunken appearance, and once a slightly yellowish tinge. I have never operated upon an early case, except the one I referred to in which there was herpes, and there the matting of the arachnoid precluded an opinion as to the condition of the cord. I show you here the cord of one of the two cases referred to above, a man who was in this hospital, and on whom I operated some time ago. He had recovered from the operation and was commencing the usual improvement, when he died quite suddenly. The immediate cause of death proved to be the common event in cases of chronic syphilis—namely, syphilitic disease of the atrioventricular bundle of the heart. In this case the cord presents a remarkably flattened appearance, and on examining the sections with the lens there is seen a definite sclero-gliosis all round the periphery of the cord. In this case, I think, all the columns are universally affected except in the cervical region. The nerve roots themselves are very slightly attacked, and therefore the incoming fibres of the column of Burdach are not much affected, but the fibres of the column of Goll are particularly. Therefore this case, at any rate, was not simply an instance of pachymeningitis, but pachymeningitis combined with a certain degree of sclero-gliosis of the cord. It is quite possible that this was the pathological condition in the majority of the cases I have seen and operated upon, but it is impossible with the present means at our disposal to speak positively.

Since the difficulty just experienced of discussing accurately the pathology of these cases is due to the fortunate rarity with which laminectomy ends fatally, I may fitly conclude by describing their treatment. In every instance all these cases have been liberally treated with drugs, and have had the most conscientious anti-syphilitic treatment when referred for surgical care, and yet they have steadily gone downhill. This, by the way, might be advanced as an argument that they cannot have had their origin in syphilis. Although, on my own part, I think a number of them are not actually syphilitic, some of the cases certainly are, and, as so constantly happens in syphilis of the nervous system, resist all treatment not directly applied by surgical intervention.

On the question of syphilis, I said earlier in the lecture that though this chronic meningitis was a disease essentially of adult age, there was one case I had treated in which the patient was not an adult, namely, the instance of a boy aged 12, who was admitted into the National Hospital under Dr. Beevor three years ago. His history was that he had a rather rapidly oncoming difficulty in walking, with cramps in the right leg, followed by weakness, and then in the left leg. Later the legs jumped, but there was no girdle sensation and no sphincter trouble. When he was admitted he also had a slight degree of nystagmus, which was a cerebral point. He had spastic paresis in the arms and legs, slight loss of power, and so on. It therefore seemed to be a definite case of high affection of the spinal cord, and the nystagmus was the only point which might have led one to hold one's hand. But, of course, nystagmus in a child, especially with a slight visual defect, was not enough to establish a contrary diagnosis or one of cerebral complication, and when I came to expose the theca I found it was a typical case of chronic meningitis, the theca being notably distended and a large amount of cerebro-spinal fluid liberated. The cord appeared normal, and on examination of the posterior median fissure nothing abnormal was found. He went out greatly improved. I believe that was a case of congenital syphilitic origin (cf. Gilles de la Tourette). But the record of causation is like much clinical work, unfortunately, in being the expression of beliefs rather than actual scientific fact. For my own part, since so very few of these patients have suggested traumatism as a cause, it is not a likely one, and, as Oppenheim particularly states, such serious meningitis is not a sequela of concussion or railway spine. Then when we come to think of other kinds of chronic specific inflammation we shall conclude, I believe, that a certain number of these cases are gonorrhoeal. I am quite ready to admit that we have not proved cytologically or bacteriologically that the cerebro-spinal fluid contains either excess of lymphocytes or gonococci, but as regards excess of corpuscles, that is not a necessary concomitant when we think of gonorrhoeal arthritis. Therefore the cytology of the affection is of less importance, and, as regards the bacteriology, great difficulties exist in tracing the gonococcus. I regret that I have no direct evidence to substantiate my view, and the only point I can adduce is that infection with gonorrhoea occurred in several cases relatively a short time before the occurrence of the spinal symptoms and in the absence of other infections.

Treatment.

Now for the detail of this surgical treatment. I have already suggested to you in the remarks made earlier that

it consists in simple laminectomy, opening the theca, and washing out the theca with a mercurial lotion. Here we enter at once on the general and interesting question of notable benefit attending the free opening of the so-called serous spaces and washing out with some antiseptic, because I suggest the parallel of this surgical treatment of spinal meningitis is the well-known surgical procedure of opening the abdomen to cure tuberculous peritonitis. I believe there is no risk in washing out the theca with strong solutions of mercury, even up to 1 in 500 strength, though I have only used that strength once or twice. Still, I should not have any hesitation in using it at any time where there was much exudation in the arachnoid, following it up with 1 in 2,000, and leaving in some of this strength when closing the wound.* The skin wound, I think, should be completely closed, not drained. I used to sew up the theca, my object being to arrest the escape of cerebro-spinal fluid into the wound. I have now given that practice up in almost all cases, because in the first place I found wounds healed as quickly, and there is as a rule no greater escape of cerebro-spinal fluid, so that that reason for suturing was not a very important one. Undoubtedly, too, there is less discomfort to the patient afterwards—namely, less tendency to headache and less tendency to the temporary pyrexia and tachycardia which laminectomy cases not infrequently show. But I have also come to believe that allowing the escape of the cerebro-spinal fluid into the wound cavity for a time, for a few days at any rate, secures a valuable new state of things, for it must get away. It does not necessarily get away through your suture opening, which remains as dry as when closed; therefore it must drain away through the lymphatics of the walls of the wound. If we can thus establish an artificial exit for the cerebro-spinal fluid by means of the lymphatics in and among the muscles surrounding the spine, then, of course, we have established a fistulous association for the carrying on of the circulation of the cerebro-spinal fluid exactly analogous to Senn's and Cushing's methods of treating hydrocephalus. Non-suturing of the theca in the operation, therefore, has a possible advantage. It is difficult to prove that this circulation exists to the degree one believes, but at any rate most of the fluid escapes in that way necessarily because it does not flow out between the stitches of the closely sutured wound. After the wound is completely healed, free mercurial inunction of the spine should be ordered, especially over the scar, on the idea that having arrested the disease an attempt should be made to secure active "absorption" and a complete restoration to health.

In concluding this sketch of an imperfectly understood chronic condition I would express the view that probably many cases of so-called acute myelitis are really meningeal in origin, and that a laminectomy and free drainage of the subdural space might arrest the whole process and the subsequent fatal injury which the cord sustains in such conditions.

REFERENCES.

[1] Spiller, Musser, and Martin, *University of Pennsylvania Medical Bulletin*, March, 1903, vol. xvi, p. 27. [2] Krause, *Zur Kenntniss der Rückenmarks-lähmungen: Verhandlungen der deutschen Gesellschaft für Chirurgie*, 1907, p. 598. [3] Schlesinger, *Beiträgen zur Kenntniss der Rückenmarks und Wirbeltumoren*, 1898. [4] Oppenheim, *Beiträge zur Diagnostik und Therapie Geschwülste im Bereich des centralen Nervensystems*, 1907. [5] *American Journal of the Medical Sciences*, vol. cxxxvii, January, 1909, p. 95.

*As a matter of fact the circulation of cerebro-spinal fluid is so active that probably any drug introduced into the theca is very soon washed out into the wound and lymphatics.

THE sanitary staff in Cuba has recently been increased with the view of mastering the yellow fever, which has not been under complete control, and the addition has proved a fortunate step, for last October was a particularly wet month. The rain in Havana was continuous, rendering the mosquito campaign most difficult. It is, moreover, in October that *Stegomyia* is most abundant. The magnitude of the task may be judged from the fact that the number of houses visited and "petrolized" during the month was 51,381, and that there were 176 cases in which *Stegomyia* larvae were found. There were 15 cases of yellow fever in July, but these dropped to 2 in August and 1 in September, while in October no cases occurred. The work of the staff is, however, by no means confined to the war against mosquito larvae. The dairies are kept under very strict inspection, and during the month of October alone 2,416 analyses of milk were made, and only 38 samples were found to be unsatisfactory.

THE SCIENCE COMMITTEE

OF THE

British Medical Association.

REPORT CXII.

OBSERVATIONS ON THE PHYSIOLOGY OF THE FEMALE GENITAL ORGANS.*

BY

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I.—GENERAL CALCIUM METABOLISM.†

SINCE much of our work upon the physiology of the female genital organs has centred around the connexion existing between the calcium metabolism and the functions of these organs, it has been necessary for us to leave the bypath of our special investigation for the main road of general physiology, in order that we might, if possible, learn more than is usually known or understood concerning the rapid tissue changes which undoubtedly occur in the general calcium metabolism. We felt that unless we had some guide as to the ordinary (non-genital) influences at work we should be unable rightly to interpret or to assign proper importance to any observations we might make in connexion with the special functions under investigation.

We feel, at the same time, that it is expected of clinicians, when they leave their sphere of greatest activity, that they shall duly acknowledge and recognize the invidiousness of their position. We do this most assuredly, and most earnestly crave indulgence for the incompleteness and sketchiness of our work. In extenuation, it will be easily understood in the first place that we have been unable to devote continuous time to the work, which, consequently, has been carried on under difficulties; and, in the second place, that we have only endeavoured to get some insight into the general calcium metabolism in order to control our special observations. The real work on these general questions has yet to be done by others. We trust that some enterprising physiologists, to whom the work really belongs, will take it up—if, indeed, many of the matters to which we shall allude are not already under consideration.

In any investigation of the rôle of any product of, or factor in, metabolism, it is necessary first of all to be able to isolate that body from the tissues to which its activities are chiefly confined, and to be able to estimate any changes it may undergo quantitatively and qualitatively in different circumstances.

In order to be able to investigate the variations in the blood-calcium content, one of us (W. B. B.) devised a method for the quantitative estimation of the calcium salts. A preliminary communication was made in the BRITISH MEDICAL JOURNAL, April 20th, 1907, concerning this method and the reasons for which it was devised. Briefly, it consists in precipitating the calcium in the blood in the form of crystals of calcium oxalate, and, after certain dilutions and precautions against the formation of other crystals, counting those of calcium oxalate, which are very uniform in size, on a haemocytometer plate. Any slight inequality in size is corrected by the large

*The authors have been greatly indebted to the Science Committee of the British Medical Association for money grants. They also wish to express their indebtedness for assistance to Mr. George Barker, Mr. T. Williamson, and Mr. James Smith; also to Professors Benjamin Moore, Salvin-Moore, and Sherrington for laboratory facilities.

†This article is based on a paper read by W. Blair Bell, upon Some Observations on the Physiological Importance of the Calcium Salts, before the Liverpool Medical Institution, February 13th, 1908, and published in the *Liverpool Medico-Chirurgical Journal*, July, 1908.

number counted. An average of 1 crystal per square gives an index of 1 (see Fig. 1).

Since that date the method has been investigated by other observers—many of whom have been kind enough to communicate their views and results to the author of it—and the expression of opinion has been very favourable as regards its accuracy. In this respect the author has been greatly indebted to Professor Herbert Jackson, of King's College, for the deep and friendly interest he has taken in the matter, and for the comprehensive investigations made in his laboratory into the reliability of the method. His verdict is that it is an excellent clinical method.* We are ready to admit (in the present state of chemical knowledge) that this may not be a strictly accurate chemical method, for probably only the ionized calcium is precipitated and estimated; but this is of small importance so long as the method is, as we believe it to be, *relatively* accurate. At the same time we would point out to those chemists who have criticized the method on theoretical grounds that really they have no *locus standi* until they can define and demonstrate what amount of calcium is ionized in the blood and what is not.† We may here state that the only adverse criticisms that have come to our knowledge through the medical press or otherwise have been advanced by men who have never seen the method practised! It will, however, be observed that we are meeting criticisms that have arisen or may arise, even though they may not be worth serious consideration.[1]

In further reference to the method—in augmentation or qualification of the original preliminary communication—we would like to say that we have quite recognized, as, indeed, was originally indicated, that no comparison can rightly be made between a watery solution and an albuminous solution, such as blood. In fact, strictly speaking, an index should be established for every fluid for itself. We hope eventually to indicate how this may best be done so as to bring all more or less into line, for we have always recognized that albuminous or colloidal solutions are the best adapted to this method of calcium estimation. Any actual estimation mentioned in these papers will only concern blood, unless it is specifically stated to the contrary. We have taken the normal maximum in human blood to be about 1 crystal per haemocytometer square. This is an index of 1, and is based on many observations. Whether it is strictly accurate or not is of little importance at the moment, for we have only required a relative measure.

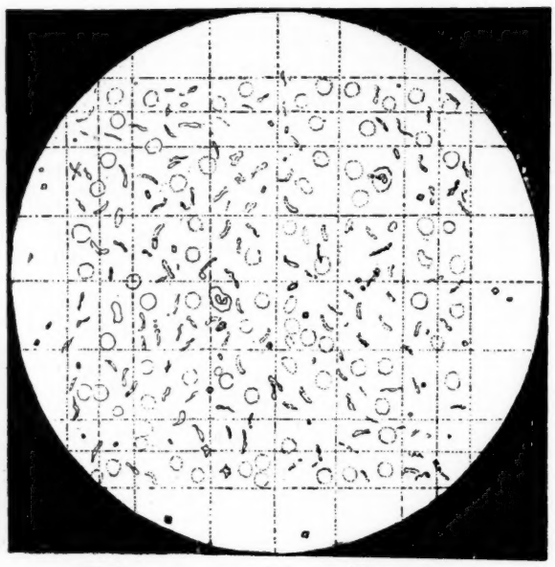

Fig. 1.—× 420. Normal blood, calcium content.

From many communications received, and from observing the work of others not conversant with the method, we think that the main difficulties have arisen:

1. In bad technique with regard to the cleanliness of the flasks, pipettes, and plates, all of which must be scrupulously dry and clean when used.

2. In the illumination and magnification. As mentioned in the original paper, only a *dull artificial* light is of any use. An ⅛ in. objective with a No. 2 eyepiece (× 420 approximately) and an Abbé condenser give the best view. We cannot overrate the importance of getting the picture correctly, otherwise it is impossible to recognize the crystals for certain.

There is one more point also alluded to in the original paper. If there is a very large number of crystals with much unevenness in size, greater dilution must be made in the *initial* stage of the process, and allowed for in the final calculation. Conversely, we may add, if there are exceedingly few or no crystals (very rare) to be seen, the *final* dilution should be lessened—say, 250 c.mm. of water should be used instead of 500 c.mm.—and allowed for in the final calculation. It has been stated that in the dilutions used calcium oxalate is soluble; we can only say that if the method is properly carried out the solubility point of calcium oxalate is never reached.

Before describing the results of the observations made we should like to discuss what value can be attributed to an estimation of the lime salts in a blood examination. In the first place, we must state that we take it as an accepted fact that the other soluble salts are concerned in the part played by the calcium salts. Secondly, we would point out that in dealing with the blood one is dealing at all times with a very variable tissue; any chemical body it contains is like an elusive Will-o'-the-wisp, which leads us a merry dance before we can come to any conclusions at all. But, after all, how can we expect otherwise? If any one ever seriously anticipated that the calcium content of the blood could be finally and definitely expressed as being one in so many thousand, as is stated in the textbooks, he must, indeed, be inflicted with laboratory vision of the worst type. These things cannot be settled by *in vitro* examination. Life, as we call it, with its never-ending changes, is a necessary adjunct to metabolism.‡

This statement, if carefully considered, should be sufficient answer to those who have written of the "curious use"[1] one of us (W. B. B.) has made of the word "index" in connexion with the calcium content. This word has passed into current medical use in connexion with many other varying metabolic factors; why not also in connexion with calcium? Far better had chemists qualify the statement to be found in textbooks that the blood contains so much calcium, estimated as CaO! It may do so in regard to the special sample that was under investigation; but there the accuracy begins and ends. The use of the word "index" makes the matter clear in regard to the method under discussion; no other word would do so.

The calcium content of the blood is, then, like that of any other food supply, a variable quantity. Apparently it corresponds to some extent with the coagulation-time variations which have been worked out by Coleman[2] and others. We would emphasize the fact very strongly, however—for it seems in danger of being overlooked—that the coagulation of blood depends on many factors, of which calcium is only one, and that acting within limits. We think, however, from our own observations and from a private communication we have received from T. Addis, that it will be shown that variations in the calcium content do not cause changes in the coagulation time to the extent usually believed.§

In order to assure ourselves of the diurnal variations in the calcium content we each estimated the other's blood at frequent intervals throughout one day, during which we ate practically the same food and took the same amount of exercise and rest. The accompanying table shows the result.

It will be seen that, with the one exception, which may not have been quite accurate, our blood contents varied regularly and together. We have not followed the quest-

* Since this paper was written, a very careful experimental criticism has also appeared. See "The Effect of the Administration of Calcium Salts and of Citric Acid on the Calcium Content and Coagulation Time of the Blood," T. Addis, *Quarterly Journal of Medicine*, January, 1909.

† In connexion with this question of "ionized" and the so-called "masked" calcium in the blood, we would point out that chemists are not all agreed. Many assert that the "masked" calcium—that is, the calcium in combination with proteids—cannot be split off and precipitated by oxalic acid. Others (see W. A. Osborne, *Journal of Physiology*, vol. xxvii, p. 400) think that oxalic acid precipitates all the calcium present.

‡ Cf. action of "Antileukozytenserum" *in vitro* and in the circulation; it is diametrically opposite (Delezenne, *zit. nach. Jahresber. f. Tierchemie*, 1900, S. 141).

§ Since this paper was written, T. Addis's paper has appeared. See previous footnote.

	W. B. B.	P. H.
Sunday, June 23rd, 1907:		
8.45 a.m.	Index, 0.7	Index, 1.2
10.0 a.m. Breakfast	—	—
11.30 a.m.	Index *	Index, 0.92
1.30 p.m. Luncheon	—	—
3.30 p.m.	Index, 0.45	Index, 0.5
3.45 to 5.15 p.m. Walking exercise	—	—
5.15 p.m.	Index, 0.65	Index, 0.56
8.0 p.m. Dinner	—	—
10.0 p.m.	Index, 0.6	Index, 0.43

* Error in technique spoilt this count; as far as could be seen index was about 1.0.

through the night. That is a small matter of research we leave open to others—not that we would shirk the task if we thought any knowledge of use to us could be gained by performing it.

This observation, which has been confirmed by other counts, was very instructive, and useful in helping one to form conclusions as to the value of indices under varying conditions, and showed the importance of taking the blood at the same time each day when making observations on a case, or performing experiments on animals. This diurnal variation gives confirmation also to the statement we have made that the blood is the agent of the tissues in respect of the calcium salts; and an index of the blood can, therefore, be construed into an index of the condition of the tissues.

In normal physiological conditions, if the tissues are needing calcium, one would expect to find a low calcium index—that is to say, the tissues will be taking up all the calcium they can get. There are, however, other sides to the question; for example, the calcium supply in the food may be low, or the absorptive functions in the bowel deficient; the tissues may want calcium, and the blood be unable to supply it in the form required; or, again, calcium may find its way into the blood in a reversed direction—from breaking down tissues—as sometimes occurs in pregnancy.

We refrain from mentioning further possibilities, for such a picture appears anything but easy of interpretation. It was, moreover, the complexity of these conditions which impelled us to seek out the regulating or controlling factors in the calcium metabolism, for we felt that upon some elucidation of this difficult problem depended the correct interpretation of many blood indices, and the probable deductions to be made eventually in questions of genital activity.

Let us state at once that much remains to be done in this direction, and one of us (P. H.) hopes in the near future to follow up the full relationship of the ductless glands to the general calcium metabolism, both in its normal and pathological aspects.

That the lime salts play a very prominent part in the metabolic processes of all living tissues there can be no doubt, and it is therefore somewhat strange that until recently so little interest has been displayed in the matter. The part played in bone formation, and in the coagulation of blood and milk (comparatively recent discoveries), and the so-called "tonic" influence on cardiac muscle, founded on the splendid work of Sidney Ringer, have been the only matters to attract attention, and even these have never been followed out properly.

Lately, however, a calcium "wave" seems to have come over medical science, and admirable work has been done in different departments by Sir A. E. Wright, Sir James Barr, MacCullum, and many others; even at the present time, however, the conclusions arrived at are very imperfect, and this we venture to think is largely due to the absence of a broad and comprehensive view of the subject, which alone can correlate all the issues.

We have, therefore, kept ever before us the importance of taking a wide outlook on all the work that has been done, and have attempted to harmonize our own observations of a general nature with those of the special functions we set out to study, for those functions are not local in origin or effect, but general.

Broadly speaking, then, we have come to the conclusion that *the lime salts are not only necessary for the construction of the body and its growth, but also for keeping it healthy and in repair, and for the reproduction of the species.*

These salts only become apparently pathological—as far as we can discover—when, like that beneficent process known as inflammation, they endeavour to rescue diseased structures and to repair them. As long as the disease—arteritis, for example—continues, so long will the reparative attempts, which include a determination of calcium salts to the part, be carried on. This reparative function of the calcium salts naturally follows on the original constructive rôle. You can cause no definite lesion, medical or surgical, in an animal, nor find one in the human subject, without there being a determination of calcium salts to the injured region, as indicated, if the lesion is severe enough, by a fall of the calcium salts in the blood until convalescence sets in—that is to say, until the demand has been met or the regulators of the calcium metabolism have established an equilibrium in the altered circumstances.

This selective and retentive power of the cell for calcium salts is probably in part under the influence of the calcium-regulating factors to be discussed presently. At the same time there is every reason to believe that individual cells exhibit a self-regulating selective and retentive power in regard to all chemical compounds with which they are brought into contact.

Had we not been able to make these observations experimentally the fact has always been there for the observing. Who has not seen the calcareous deposits at the site of many an old chronically inflamed area? It is an every-day observation in the case of tuberculous disease, but has the full significance ever been realized?

We believe that there is no such thing as calcareous degeneration. What does happen is that there is a calcification—the result of a reparative process—in diseased structures.* We would refer, in this connexion, to an extremely interesting paper by O. T. Williams,[8] in which he claimed that the calcium soaps, which he demonstrated to be deposited in diseased appendices, were the cause of the condition known as appendicitis. Is it not possible, however, that these calcium compounds are there *as the result rather than the cause* of the inflammation? We would also point out that ordinary fibrous tissue, especially scar tissue, is relatively exceedingly rich in calcium salts, for the benefit of those who are at all sceptical of the deductions drawn concerning the deposition of calcium compounds.

These views, as already stated, have been entirely supported by hundreds of blood examinations, particulars of which would be superfluous here; and these observations, like those on the diurnal variations, have been of great importance in assisting us to understand the blood index.

In addition to constructive and reparative processes in which the calcium salts are retained or fixed, there are other processes no less important—indeed, it was the mystery surrounding them that led us to look for the regulating factors in the calcium economy.

Even while circulating in the blood the calcium salts play a large part in the health of the individual. We say "even while circulating," whereas, of course, we mean to speak of them in the same way as one does of the oxygen in the form of oxyhaemoglobin, or of the opsonins in the blood—in the potentialities each possesses.

It is to the metabolism associated with the rapid tissue changes rather than that associated with the retention of lime salts, already alluded to, that we now wish to call attention. Suppose that the individual is structurally and physiologically perfect for the time being, what are the processes in which the calcium salts take part? We do not pretend to know all, nor perhaps even the larger number, but we will mention briefly those which we think are most worthy of attention, and of which we have some knowledge.

In regard to these rapid tissue changes, in the first place there can be no doubt, we think, that the lime salts are largely concerned in the contraction of the involuntary muscle throughout the whole body. If we were able to abstract the lime salts from the blood, or prevent them gaining

* The deposition of calcium soaps is an intermediate stage leading to calcification.

admittance, the heart would fail and involuntary movement generally would cease. Sidney Ringer's brilliant work in this direction established these facts. In a later paper, when dealing with uterine contractions, we shall illustrate the effect of calcium salts upon the heart. We do not for one moment say that involuntary muscles cannot be affected by other chemical and physical agents, but there is very strong evidence to show that the calcium salts play a large part in the production of the normal stimulus, and—to speculate—probably of the primary stimulus in the embryo. In subsequent papers we shall deal with the question of uterine contractions, and also with the processes with which calcium salts are concerned in menstruation, pregnancy, and lactation.

We have made, also, some observations in regard to the calcium content of the blood and its coagulability, and while we have not made any serious study of the question —for T. Addis, of Edinburgh, has informed one of us in a private communication that he has this matter in hand*— we would like to make a few remarks upon the subject here.

We have often been asked if there is not a certain element of danger in the free administration of calcium salts. From many observations and experiments we feel quite justified in saying No. One cannot force up the calcium index in the blood much beyond the usual maximum, in normal circumstances, either by oral administration or subcutaneous injection, and even if this were possible—to have a lawyer's alternative—clotting in the vessels, *if they were healthy*, would not occur. We have killed animals with intravenous injections of calcium salts without producing intravascular clotting, *except where the vessels had been previously damaged*. There is therefore, we think, an *optimum* amount with a quickest normal clotting time, and the latter excess of calcium salts cannot increase. Given, of course, an inflamed or damaged vessel —for example, phlebitis after typhoid fever or arteritis— and one may get a deposit of lime salts in the damaged walls (vide supra), and possibly clotting in the damaged vessel, which will be most likely to occur if the calcium *optimum* index for clotting exists.

One more point in this connexion. Sir A. E. Wright showed that the oral administration of an excess of calcium—which we presume he thought got into the blood —delayed clotting; but apparently, from observations we have made, this is not due, as he thought, to an excess, but to a deficiency, in the blood. It is probable that after excessive dosage the body becomes immune or resistant to the absorption of calcium salts, or excessively active in their excretion, effected probably by the thyroid secretion. This point might with advantage be studied in infant feeding and rickets.

Of the many other points that have interested us in taking a general survey of the calcium metabolism we may single out two which have brought into our minds matters of some importance.

If we are right in our main belief that the calcium metabolism is largely concerned in the physiological processes of women, may not the alteration in the calcium economy at the menopause be to some extent accountable for the deposition of fat? This does not of course coincide with the general ideas concerning obesity and the allied metabolic processes to which that condition is usually attributed; but in view of the close connexion between certain fatty acids and calcium metabolism we feel that there may be some association which future investigation will lay bare. Excellent work on the relationship of these fatty acids to one another in regard to the absorption and deposition of fats, and on the formation of calcium soaps has already been carried out by O. T. Williams (loc. cit.).

The other suggestion we would make is this: May not the deficient excretion of calcium soaps by the bowel in physiologically active women be the cause of chronic constipation—an ever-present evil with the female sex? We think these points are well worthy of bio-chemical investigation.

Before discussing the regulating factors it may be well to include here an observation which has given rise to some controversy. While looking for a suitable organic compound of calcium for hypodermic injection it occurred to us to try gelatine, which, as is well known, contains a large amount of calcium; indeed, it has been suggested that the power of gelatine, when used therapeutically in cases of aneurysm to influence the coagulability of blood, is due to the contained calcium.[4]

We were consequently led to investigate this animal product, and found that by the method already described it was possible to estimate the calcium. Though, of course, not strictly comparable with blood, we may state that, although the commercial samples vary, we found the average index to be about 20. It will be readily understood how this quantity might influence the blood of the individual into whom it was injected. As yet no direct experiments have been done in this direction, but we found that intravenous injection of 4 per cent. gelatine solution did not cause intravascular clotting. Gelatine corresponds, therefore, with other calcium compounds in this respect, and by this behaviour tends to confirm the suggestions that its calcium content is responsible for the raised coagulability, if this does occur, rather than any nucleo-proteid-like substance.

The following protocol illustrates the action of a 2 per cent. solution of gelatine subcutaneously injected upon the systemic blood calcium content.

	White Buck Rabbit.	
November 1st, 1907:		
9.45 a.m.	Index 0.67	10 c.cm. 2 per cent. gelatine solution subcutaneously injected.
11.45 a.m.	,, 0.67	
12.45 p.m.	,, 0.7	
3.45 p.m.	,, 0.7	
5.40 p.m.	—	10 c.cm. 2 per cent. gelatine solution subcutaneously injected.
5.55 p.m.	Index 0.76	

If, therefore, the gelatine does raise the calcium content of the blood a 2 per cent. solution does not appear to be strong enough. It is only fair to state that Boggs[5] found the period of increased coagulability to be at a maximum as long as twelve hours after the injection. The diverse results obtained in the experiments of Boggs and the conflicting opinions of Dastre and Floresco[6] on the one hand, and those of Brat[7] and Sackur[8] on the other, regarding the influence of gelatine upon the coagulability of the blood may be explained on the theory of immunization we have already alluded to, or—and this is more likely—on the ground that the methods employed by them for estimating the coagulability were inaccurate.

It was in connexion with the coagulation, or "setting," of gelatine that we made some observations which have given rise to controversy. The results of our experiments led us to ask if it was not possible that the presence of calcium was necessary for the occurrence of this process. In October and November, 1907, we carried out a series of experiments in which we tried the effect upon the coagulation of gelatine of solutions of the following substances: oxalic acid, acetic acid, ammonium oxalate and sodium citrate.† We do not think it necessary to give the protocols in detail, but will briefly summarize our results.

We found that we obtained a heavy white precipitate of calcium oxalate with ammonium oxalate and oxalic acid, and that the salts above mentioned caused marked retardation of the coagulation time. Further, that the acids (if the gelatine was in weak solution) also retarded the coagulation under ordinary circumstances; but that if the solutions were kept at a temperature which would prevent gelatinization for about forty-eight hours, that process did not occur at all. Further, we found that the *prolonged action of ammonium oxalate, but not of other salts, prevented coagulation.*

Now, in regard to the criticisms raised with reference to the suggestion that it might be worth while for chemists to discover if calcium was really an integral part of gelatine, and whether gelatine existed as such without calcium—in the first place, let us state that in all the papers quoted to disprove our suggestion (it has never been more than a suggestion) there is no mention of calcium-free gelatine having been obtained. Morner[9] and

* See previous note.

† Compare these experiments with the statements made by H E. Roaf (Reference

many others have done their best to obtain calcium-free gelatine, but as far as we know no one has succeeded. It seems to us, therefore, that, whether our suggestion is right or wrong, it is hardly logical to argue that because a certain percentage has been removed without interfering with the coagulability, calcium has therefore nothing to do with the process. In regard to this point, Addis's work on blood coagulation is of much interest.

Nor does it appear reasonable to assume, as has been done,[1] that because in certain experiments *delayed* coagulation only was obtained, therefore the calcium cannot be concerned. We have secured prevention of coagulation, but to that we do not wish to attach undue importance, although such positive evidence is certainly of more value than the negative evidence just alluded to.

It has also been suggested that the hydrogen ions in the oxalic acid are responsible for the result. This seems to be quite as indefinite a statement, and one which requires some proof. However, until calcium-free gelatine has been obtained which will gelatinize, and so prove our suggestion to be wrong, we would commend to unbiassed observers the following points which seem to us to be worth consideration in any attempt to settle the question:

If calcium is a factor in the coagulation of blood—and we believe that this is usually accepted—and oxalic acid and ammonium oxalate prevent that coagulation by precipitating the calcium, is it not possible that the same result obtained in the case of gelatine is due to the same cause? Again, most salts retard the coagulation of blood, just as the "setting" of gelatine is delayed by them. C. J. Martin[10] attributes the result obtained by citric acid and citrates in the case of the blood to an alteration in the ionization of calcium; and this is, we believe, universally accepted. Is it not possible to apply the same idea to the action of these and similar compounds upon gelatine? This is a small matter, perhaps, and we have no wish to discuss it at greater length, as it in no way concerns our work; but, having made a promise to deal with any criticisms raised,[1] we have therefore attempted to fulfil it.

In our investigations we have so far touched but slightly upon the importance of the ductless glands in the regulation of the calcium metabolism. Time has not allowed that complete inquiry which will, as already mentioned, be pursued later by one of us. There are several points, however, to which we desire to draw attention, for they seem to have some relation to genital activity.

First, in regard to the thyroid gland. Clinically, we had observed that in most cases of exophthalmic goitre, where the thyroid secretion was in excess, the blood calcium index was low, an observation which caused us to suggest to Sir James Barr that calcium salts might possibly have some therapeutic, or at least symptomatic, advantage in this disease. Sir James Barr very kindly gave these salts a trial, with undoubted advantage in many cases, the pulse-rate being markedly lowered.

Following this up, we excised the thyroid, and as far as possible the parathyroid glands of four cats. Two were quite young, and two full grown. Two died in a few days—one young and one adult—the former with tetanic convulsions on the fourth day, and the adult a few days later with slight spasms and great muscular weakness.

The other young cat died at the end of fourteen days, much emaciated, and with great muscular weakness. The last—a large black tom-cat—was becoming lethargic and myxoedematous, so we castrated him. From that time he steadily improved, and is at present quite lively and particularly intelligent. His coat is perhaps a trifle dull and dusty-looking, otherwise there is nothing at all indicative of myxoedema.* This effect of castration, if one can claim so much in a solitary instance, requires further investigation. We have been told that Stanley Kent obtained the same result, but never published an account of his experiments.

With regard to the observations made on the blood of these cats, in each of the *young* cats the calcium index ran up to a remarkable extent, while the older cats were not affected in the same way. All the animals lost weight.

The following are the protocols of these experiments:

I. *Large Tortoise-shell Tom-cat.*
November 25th, 1907. Index 0.78. Weight 3,350 grams. Complete thyroidectomy.
November 28th, 1907. Not well; lying very quiet. Slight muscular twitchings.
November 29th, 1907. Very quiet. Spasms when touched. Some muscular weakness. Index 0.74. Given 5 c.cm. thyracol solution and 5 c.cm. 20 per cent. gelatine solution.
November 30th, 1907. Better. Still weak. No spasms. Index 1.3.
December 1st, 1907. Died during night. Weight 2,800 grams.

II. *Young Tortoise-shell She-cat.*
November 25th, 1907. Index 0.48. Weight 1,550 grams. Complete thyroidectomy.
November 28th, 1907. Very restless; quite strong.
November 29th, 1907. In continual tetanic convulsions; cannot stand. Index 5.5. 5 c.cm. thyracol solution hypodermically and 5 c.cm. gelatine solution 20 per cent.
November 30th, 1907. Convulsions more intermittent. Still violent. Index 9.0. 10 c.cm. thyracol solution given hypodermically.
December 1st, 1907. Better. One slight convulsion. Very weak. Index 3.0.
December 2nd, 1907. Died during the night. Weight 1,240 grams.

III. *Young Black Tom-cat.*
November 27th, 1907. Index 0.67. Weight 1,750 grams. Complete thyroidectomy.
November 29th, 1907. Apparently quite well.
December 1st, 1907. Index 2.7.
December 5th, 1907. Index 14.0. Cat getting weak.
December 6th, 1907. Index 15.0. Cat much weaker.
December 7th, 1907. Index 11.0. Cat still very weak, but seems a little brighter.
December 8th, 1907. Index 12.0. Cannot use hind legs. Injection of 5 c.cm. thyracol.
December 9th, 1907. About the same condition. Weight 1,210 grams.
December 10th, 1907. Index 7.0. Cat seems much better. Injection of 5 c.cm. thyracol.
December 11th, 1907. Index 18.0. Cat seems not nearly so well to-day.
December 12th, 1907. Died during the night.

IV. *Large Black Tom-cat.*
November 27th, 1907. Index 0.3. Weight 3,250 grams. Complete thyroidectomy.
November 29th, 1907. Apparently well.
December 1st, 1907. Index 0.7. Apparently well.
December 5th, 1907. Index 0.5. Very quiet.
December 6th, 1907. Index 0.4. Rather weak.
December 7th, 1907. Index 0.8. Seems better than he was yesterday.
December 8th, 1907. Index 0.4. Seems strong but very lethargic.
December 9th, 1907. Index 0.4. So dull and apathetic that he is apparently developing myxoedema. Weight 2,890 grams. Castrated.
December 10th, 1907. Index 0.8.
December 11th, 1907. Index 0.6.
December 12th, 1907. Index 1.0. Quite active and bright. Stole some fish.
December 23rd, 1907. Index 1.0. Apparently normal.

We likewise operated upon three rabbits, but in none of these did we get the results obtained with cats. Beyond some temporary loss of weight they showed hardly any symptoms at all; nor did the calcium indices show marked increases. It will be noted, however, that the only one at all ill was the *young* one. The primary drop in the calcium content which follows all operations occurred, and was followed by a gradual restitution to the normal. This is seen from the following protocols:

I. *Grey and White Buck.*
November 23rd, 1907. Index 0.8. Weight 2,700 grams.
November 24th, 1907. Complete thyroidectomy.
November 25th, 1907. Index 0.57.
November 26th, 1907. Index 0.45.
November 27th, 1907. Index 0.3.
November 28th, 1907. Index 0.4. Weight 2,550 grams.
November 29th, 1907. Index 0.7.
November 30th, 1907. Index 1.0.
December 2nd, 1907. Index 1.1. Weight 2,410 grams.
December 4th, 1907. Index 0.72. Weight 2,340 grams.
December 11th, 1907. Index 1.0. Weight 2,420 grams.
December 18th, 1907. Index 0.8. Weight 2,640 grams.

II. *Brown Buck.*
November 23rd, 1907. Index 0.8. Weight 2,140 grams.
November 24th, 1907. Complete thyroidectomy.
November 25th, 1907. Index 0.54.
November 26th, 1907. Index 0.57.
November 27th, 1907. Index 1.2.
November 28th, 1907. Index 1.0. Weight 2,140 grams.
November 29th, 1907. Index 1.1.
December 9th, 1907. Index 0.62. Weight 2,120 grams.
December 16th, 1907. Index 1.7. Weight 2,260 grams.
December 20th, 1907. Animal seems ill.

* Recently an improvement in the condition of his coat has been brought about by the administration of thyroid gland extract.

December 21st, 1907. Died. *Post-mortem* examination showed intestinal obstruction. Intestines much matted together and distended. This was evidently the cause of death.

III. *Black and White Doe (not full grown).*
November 23rd, 1907. Index 2.0. Weight 1,510 grams.
November 24th, 1907. Complete thyroidectomy.
November 25th, 1907. Index 1.4.
November 26th, 1907. Index 0.7.
November 27th, 1907. Index 0.4.
November 28th, 1907. Index 0.2. Weight 1,400 grams.
November 29th, 1907. Index 0.56. Rabbit seems ill. ½ c.cm. thyracol given hypodermically.
November 30th, 1907. Index 0.74. ½ c.cm. thyracol given hypodermically.
December 2nd, 1907. Index 1.2. Weight 1,410 grams. Rabbit better.
December 4th, 1907. Index 0.9.
December 7th, 1907. Index 0.9. Weight 1,320 grams.
December 11th, 1907. Index 1.8. Weight 1,310 grams.
November 18th, 1907. Index 0.87. Weight 1,340 grams.

It is, however, well known that rabbits and herbivorous animals generally do not exhibit the effects of complete thyroidectomy and parathyroidectomy (if the latter is effected, which is somewhat doubtful) to the same extent as carnivorous animals. This probably explains the results of our experiments on rabbits.

There can be little doubt, we think, that the thyroid secretion plays some part in the calcium metabolism along, perhaps, with other functions, and the evidence all seems to point to an excretory effect.

Scordo and Franchini (Grocco's Clinic)[11] have recently arrived at the same conclusion from a careful examination of the calcium excretion in the urine of patients suffering from exophthalmic goitre. On the other hand, MacCallum and Voegtlin,[12] in their work on the parathyroids and calcium metabolism, arrive at a different conclusion. There must be, however, some connexion between the secretion of the thyroid gland and the calcium metabolism, even if only an intermediary one, and we shall allude to this in a later paper in regard to thyroid activity during menstruation and pregnancy.

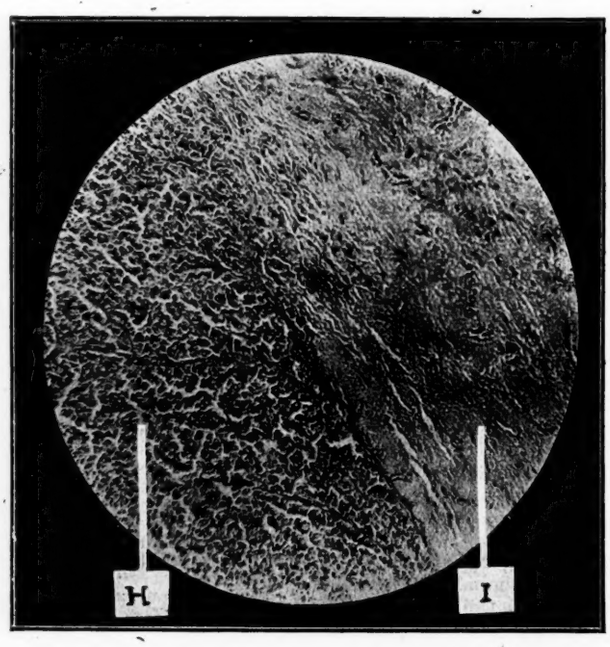

Fig. 2.—Pituitary gland (×250). Note sharp line of demarcation between hypophysis and infundibulum

Next, the pituitary gland has engaged our attention. It is hardly necessary to say that the gland has frequently been found to be diseased in connexion with bony overgrowths, such as one finds in acromegaly; consequently it is natural to imagine that the secretion of the gland is normally concerned in the limitation of bony deposition, or calcium retention. But, further, it is found that the extract made from the infundibular portion of the gland (Fig. 2, I)—strangely enough the non-glandular portion—has an enormously powerful influence upon involuntary muscle fibre. This effect is most marked upon the uterus, as we hope to show in a later paper. The glandular portion of the gland (Fig. 2, II) is inactive in this respect. Mr. H. H. Dale, of the Wellcome Laboratories, who has kindly furnished us with the extract, has done much good work on this subject. Professor Schäfer, however, was the first to remove the pituitary gland from the lumber room of "embryonic relics."

We have reason to believe that further investigation will show that an intimate connexion exists between the pituitary extract and the calcium metabolism. Our experiments have been limited in number, but seem to show that under the influence of pituitary extract there is an increase of calcium in the blood, whether it is a normal or permanent effect we are not at the present moment prepared to say.

Again, adrenal extract, as every one knows, has not only a marked influence on involuntary muscle, but also causes calcium retention in the tissues. Acting upon this knowlege, Bossi[13] of Genoa has found that osteomalacia can be much improved by the administration of this product, and experimentally it has been shown that calcareous retention in the blood vessels is brought about by its influence.[14] This, however, may be a natural process consequent upon an arteritis.

Lastly, the ovaries (and testes possibly also) influence calcium metabolism, as is shown in many ways: osteomalacia has been cured by oöphorectomy, and we know that calcium retention occurs after the menopause. It is possible, also, that the part played by the internal secretion of the ovary in menstruation and pregnancy has reference to the calcium metabolism concerned in these processes.

This syndrome of facts leads one to many speculations — speculations which must be checked by careful experimentation. It seems, however, more than probable that the ductless glands preserve a balance in the calcium metabolism — as they do in many other metabolic processes—one acting anabolically, another katabolically.

It is sufficient for our present purpose to know that there is some important relationship, but we hope in the subsequent papers to indicate and illustrate more fully the connexion that exists between these glands and the functions of the female genital apparatus.

REFERENCES.
[1] See Correspondence, BRITISH MEDICAL JOURNAL, March 14th, and 21st and April 4th, 1908. [2] *The Biochemical Journal*, vol. ii, No. 4, p. 387, 1907 [The methods used by Coleman, Wright, Brodie and Russell, and others, have been seriously questioned.—W. B. B., P. H.]. [3] O. T. Williams, The Etiology of Appendicitis, *Liverpool Med.-Chir. Journal*, July, 1908. [4] Zibel, *Münch. med. Woch.*, 1901, S. 1643; Gley and Richard, *Comptes Rendus Soc. de Biol.*, 1903, Bd. 55, S. 464. [5] T. Boggs, *Deut. Archiv f. klin Med*, 1904, 79, xxix, S. 539 [The methods used by him have also been questioned.—W. B. B., P. H.]. [6] Dastre and Floresco, *Archiv. de Physiol.*, 1895, S. 402. [7] Brat, *Berl. klin. Woch.*, 1902, S. 1146 and 1170 [8] Sackur, *Grenzgebiete*, 8, S. 188. [9] Morner, *Zeit. f. Physiol. Chem.*, 1899, Bd. xxviii, p. 471. [10] C. J. Martin, A Communication to the Physiol. Soc., Lister Institute, 1904. [11] Scordo and Franchini, *Il Policlinico*. 1907, xvi, p. 285. [12] MacCullum and Voegtlin, *Johns Hopkins Bulletin*, March, 1908. [13] Bossi, *Zentralbl. f. Gynäk.*, Nos. 3 and 6, 1907. [14] Wells, *Chemical Pathology*, p. 545, various references.

ON SLEEP AND WANT OF SLEEP.

BY

THE RIGHT HON. ROBERT FARQUHARSON, M.D.

"A BLESSING on him that invented sleep. It wraps us up like a garment," and "Sleep that does weigh our eyelids down, and steep our senses in forgetfulness." These hackneyed quotations sum up the case in favour of Nature's sweet restorer, and we all sympathize with the poor monarch who in vain sought the nightly refuge from the trials and worries of the world so freely granted to the meanest of his subjects.

I am not going to attempt to be instructive in this paper. My ambitions do not point so high, and I should like to imitate the man who, if not witty himself, was the cause of wit in others, by inducing more especially general practitioners of large practical experience to help in clearing up some still obscure points in connexion with sleeping;

and perhaps consultants and scientific experimentalists will have a look-in too, and join a symposium to instruct more ignorant people what sleep really means, how it is lost, and how it can be regained quickly, efficiently, and safely. In the first place, is it not the case that there must be varieties of sleep? Unless the classical researches of Durham have been superseded by some industriously obtrusive German, it must be still taken as proved that the physiological process known as sleep results from an anaemic condition of the brain. But then there is a pathological variety. The stertorous coma of apoplexy, the anaesthetic unconsciousness of chloroform or opium poisoning, the nodding off after a heavy dinner or a good dose of the stronger wines, the sleep of utter exhaustion when we read of soldiers falling asleep on the march, little children tired out with the irrepressible vivacity of their waking hours, and the classical instance narrated by Sir Thomas Watson, and painted by Sir Charles Bell, of the man who had been operated on for tracheotomy.

"Though half a dozen candles are held close to his face to throw light on the wound, and though the surgeons, their hands smeared with blood, are still busy about his throat, making arrangements to ensure the patency of the orifice, the patient falls asleep."[1]

I have known three very distinguished men who never could keep awake after dinner—Sir J. FitzJames Stephen, the late Sir George Campbell, and Lord Strathnairn. This illustrious general was excessively hospitable, and when I was quartered in Dublin, hardly a day passed without his orderly riding into barracks to invite some of us to dinner. Before the wine was placed on the table the old gentleman invariably began to nod, and when his forty winks were over he pulled himself together, sprinkled his face freely with cold water, and was bright and brisk for the rest of the evening. And some judges scandalize the court by their invariable habit of dropping into a deep sleep in the middle of a case about which they eventually have to give judgement. This would seem a convenient time to ask the question to which I have never yet succeeded in getting an answer—why these short naps of five or ten minutes, snatched in the middle of work, or even of play, are so extraordinarily refreshing? Over and over again, when completely tired out with the rush and bustle of London, or the strenuous increasing strain of parliamentary life, I have closed my eyes when I felt an "exposition of sleep" coming over me, and have waked up more pulled together than even by seven or eight hours between the sheets; and why, on the other hand, the same dose, administered in the early morning after the first waking, makes one sleepy, sluggish, and irritable, and easily worried during the rest of the day? How, again, are we to explain the irresistible onset of sleep which comes upon us when listening to a dreary sermon or lecture, or reading a dull book, or trying in vain to follow a wearisome debate in the House of Commons? So much, then, for the causes of sleep, and shall I be considered very stupid if I venture to ask what the precise physiological conditions are under these varied circumstances? Anaemia cannot explain them all, so will some one tell me in easy and simple language, devoid of scientific technicalities, and especially avoiding the jaw-breaking phrases that are worse than Greek and Hebrew to some of us, which depend on a full-blooded brain, and to which the very ingenious experiments of Durham specially apply?

Now for some of the reasons why we do not sleep. An overtaxed brain is a frequent cause. They say that the only time Gladstone went off his sleep was during his anxiety for Gordon during that anxious time at Khartoum. As a general rule, on retiring from the House after the most strenuous debates, he invariably laid down his troubles at his bedroom door, brewed himself a cup of tea, and read for an hour or so some novel recommended by his daughter, who was his censor of the press. This seems to be rather curious—the double action of tea. Undoubtedly one often feels drowsy after drinking it; and young ladies, on returning from a ball, frequently take it to sooth their nerves, whilst, on the other hand, nothing is more certain than its irritating effect in preventing sleep. Probably the warmth of the infusion explains its soporific action, for a copious draught of almost boiling water is well known to woo the gentle goddess effectually. Some people need a nightcap of whisky, hot or cold, while others insist on a superadded pipe; and there is no doubt that weakly people are often made to sleep soundly by being furnished with some easily digested nourishment after getting into bed. Then the room must neither be too hot or too cold, the bed must be properly placed, the weight of clothing must be carefully regulated by the temperature; chilly mortals appreciate a hot bottle, and whilst some cannot sleep with an open window, others are obliged to fling it wide before slumber can be obtained.

Heavy suppers must be avoided, and champagne in particular; either keeps people wide awake, or makes them restless, and obliged to sit up or get up, and toss about on their pillow at an unusually early hour. Of course, worry must be avoided, and it is wise not to open letters at night, lest they contain something disconcerting or depressing. Any regular noise, like a crowing cock, or a barking dog, or a squalling baby, must be suppressed, and the brain must be kept at rest as far as possible, although some people are soothed by a little reading just after turning in. Music, they say, has power to soothe the savage breast; and a good story may be recalled of one of Lord Rosebery's daughters, who was taken to task by the nurse for thinking too much after she got into bed, and who replied, "You know, I can't make my mind sit down."

It is the fashion to say that you can cure insomnia by counting up to a regulated number, or imagining sheep jumping over a gap, or some device of that kind; but I have never yet met any one who would confess to having derived benefit from these domestic expedients. So at last it comes to this, that everything else has failed and we must have recourse to narcotics; and here some important ethical questions come in. Some physicians—rather pedantically, I think—will not give their sleepless patients relief by drugs for fear they get into the habit of taking them regularly. Of course, we cannot altogether ignore this view; but Sir Lauder Brunton, the wisest and most suggestive of modern physicians, once put the case in a nutshell by saying, "Insomnia is a bad habit, and may become permanent if we do not break it."

So what are the best remedies, how should we use them, and what are the contraindications and dangers attending their use?

Now, this brings us to what is or ought to be admitted as the most difficult and delicate bit of therapeutics. To begin with, idiosyncrasy, that baffling and inexplicable individual peculiarity, introduces an element of difficulty and danger. The old saying, "What is one man's meat is another man's poison," applies still more emphatically to drugs, and we may get into great trouble if we do not "gang warily" when dealing with narcotics. For instance, a single drop of laudanum has been known to kill a baby, and yet, whilst I have seen a woman display well-marked physiological symptoms after a few 10-minim doses, I have often prescribed 20 minims of the tincture of belladonna for a child of 2 years without anything of the kind; and it is well known that a single application of the liniment will bring out a very irritating papular eruption on some skins. Certain people can take large quantities of opium without bad effects, and toleration is rapidly produced. James Payn graphically describes how he saw De Quincey toss off the best part of a glass of laudanum without the slightest inconvenience.

Then take my own case. Bromide of potassium, which so effectively soothes the nervous system and causes refreshing sleep as a general rule, even when pushed to heroic doses, has never had the slightest effect on me, and the same remark applies to the entire synthetic series, with the single exception of veronal, which cannot be used freely without unpleasant and even dangerous effects. Now, to choose our special form of drug. After all, nothing equals the rapid and eminently soothing sleep given by morphine, and its subcutaneous use not only relieves pain as by magic, but beats any other form of tonic and stimulant clean out of the field. Chloral depresses the heart, and must be used with caution, for the uncertainty of its action warns us to feel our way with great care in prescribing it, for death has been known to follow a single dose of 30 grains, and a series of cases has been recorded in which symptoms arose akin to blood poisoning, with purpuric and scorbutic eruptions, ulceration of the gums, and great prostration, ending in death; and I have known a single

moderate dose of bromide of potassium bring out the unsightly and irritating eruption of acne which is one of its most unpleasant physiological effects. The great advantage of sulphonal is that it may be continued for prolonged periods without increasing the dose. The late Sir Henry Thompson at one time took a nightly draught, which had to be very carefully prepared because of its insoluble nature; and an active and energetic friend of mine, and one of the best shots in Aberdeenshire, has taken 10 grains three times a week for many years with good effect, and has never found it necessary to go beyond that quantity; on the other hand, it is not quite free from danger, and not very long ago an elderly lady friend of mine died from evident accumulation in her system from a series of not very heavy doses taken for purely narcotic purposes.

So much for the choice of narcotics; may I say a few words about the anatomical or pathological conditions which may interfere with their action? Sleep being produced by anaemia of the brain, what is the effect of the rigidity of the arterial system in advancing years, and which, of course, prevents the rapid variation of the conditions of circulation within the cerebral mass? and what is the precise effect of pregnancy, or alcoholism, or diabetes, or glycosuria, or Bright's disease, or blood and urine loaded with uric acid, or a congested liver, or blocking of what old-fashioned writers used to call the "primae viae" by chronic constipation? Space forbids me to pursue this suggestive line further, but if the Collective Investigation Committee of the British Medical Association, which formerly did excellent work, still exists, I would recommend this subject to their earnest consideration. For, so far as I know, either there is no sufficient information to guide us or it is so scattered as to be of comparatively little use; and further contributions to our knowledge will be gratefully received and acknowledged by those who, like myself, are ignorant, perhaps through no fault of our own.

REFERENCE.

1 Watson, *Principles and Practice of Physic*, vol. i, p. 842.

The Morison Lectures

ON THE

PATHOLOGY OF SYPHILIS OF THE NERVOUS SYSTEM IN THE LIGHT OF MODERN RESEARCH.

DELIVERED AT THE ROYAL COLLEGE OF PHYSICIANS, EDINBURGH, JAN. 25TH, 27TH, AND 29TH, 1909.

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LECTURE III.

I ENDEAVOURED in my last lectures to indicate some of the advances made in our knowledge of the biology and bio-chemistry of syphilis, and in this my last lecture I will try to correlate the facts with clinico-anatomical knowledge, especially in relation to the etiology of the parasyphilitic affections, tabes, and general paralysis.

PARASYPHILIS (FOURNIER); METASYPHILIS (MOEBIUS).

Parasyphilis is the term given by Fournier to those diseases of which syphilis is essentially the cause, but which are not directly the result of the syphilitic virus. Such diseases are: General paralysis, tabes dorsalis, tabo-paralysis, and primary optic atrophy. These diseases are really a single morbid entity owning the same cause; insidious in onset, progressive in character, and uninfluenced by antisyphilitic remedies. These various clinical types of parasyphilitic disease are the result of a primary neuronic dystrophy; they have a similar pathogenesis, and may occur simultaneously or successively in the same individual. In tabes dorsalis the spinal sensory protoneurons are affected; in general paralysis the cortical association neurons; in tabo-paralysis both are affected simultaneously or successively. The dystrophic process is due to a lack of durability of the neurons; it may be a slow process of decay and death of the intraspinal portion of the sensory protoneurons, as in the case of tabes dorsalis; it may be a rapid process of decay and death of systems and communities of neurons of the brain, as in general paralysis. The former is a smouldering destruction of neural elements, the latter a conflagration often fanned into flames by microbial toxaemia, autotoxaemia, or circulatory disturbances associated with arterial anaemia and venous congestion with blood stasis of the brain. It is probable that Erb's spinal paralysis and certain cases of amyotrophic lateral sclerosis may be primary post-syphilitic dystrophies.

Fournier thus classifies parasyphilitic affections:

I. ACQUIRED SYPHILIS.

1. Acute hystero-neurasthenia of the secondary period.
2. Different neurasthenic manifestations of a more advanced stage.
3. Tabes.
4. General paralysis.
5. A special form of epilepsy.
6. A special form of muscular atrophy.

II. HEREDO-SYPHILIS.

Numerous dystrophic troubles, general or partial; malformation, notably dental; arrest or retardation of physical and intellectual development, infantilism, dwarfism, inborn lack of vitality, cachexia, marasmus, rickets, hydrocephalus, certain forms of simple meningitis in early life, possibly certain cases of true epilepsy, juvenile tabes, spinal and optic juvenile general paresis. The gravity of these affections lies in the fact that they are uninfluenced by antisyphilitic treatment. The local and general failure of development may be due (1) to the direct influence of the virus upon the life and growth of the tissues, or (2) indirectly to exhaustion of the specific energy of the cells of the central nervous system by the establishment of an altered metabolism, the bio-chemical nature of which is not yet fully understood. But, as a provisional hypothesis, we might suggest that the unloosening of lipoid substances into the blood, which we know occurs in congenital syphilis, may lead to a defective *vita propria* of all the cells of the body. In some lesions of congenital syphilis it may be actually due to the local invasions and multiplication of the spirochaete, for they have been found in abundance in situations where local lesions exist—for example, the epiphysis of bone—and why not in the epiblastic enamel germs?

We might provisionally suggest as a hypothesis that in all cases of acquired and congenital syphilis the living contagium, spirochaete, excites the tissues and fluids of the body to a defensive reaction. The difference in the effects of inoculation may depend upon the virus itself. Some striking examples will be given later on which apparently indicate that there may be a special neurotoxic virus, and if such instances were more numerous we could hardly believe that coincidence could explain the facts. If, as there is reason to believe, the *Spirochaeta pallida* is the living contagium, and that, becoming generalized in the lymph and blood stream, it produces the secondary manifestations, then there is a certain amount of chance what tissues will be attacked; for the living agent, swept along in the blood stream, may become lodged anywhere, and, by blocking capillaries, cause a local focus of tissue infection. The existence of a generalized eruption implies virulence of the circulating blood, and experiments demonstrate the fact that the blood is virulent during the eruptive stage; thus, Neisser has obtained a positive result by injection of blood into the skin in the chimpanzee, and Roux and Metchnikoff have successfully inoculated a macaque monkey from the blood of the chimpanzee in the eruptive period. It would be of great interest to know how long the virulence of the blood persists after the generalized eruption, or if the consecutive attacks which may occur even after fifteen or twenty years are explained by the "contagium vivum" remaining latent in the lymphatic glands or some deep-seated organ. What is the evidence in favour of this view?

It is generally admitted that the subjects of tabes and general paralysis are recruited especially from those individuals who have had a mild attack and who very seldom show any signs or symptoms of tertiary gummatous skin, visceral or bone lesions. Fournier states: "The comparative mildness of the primary constitutional symptoms in those who ulti-

mately become tabetic would almost seem to indicate that, when the syphilitic virus expends itself in severe primary and secondary manifestations, there is a less tendency to the subtle poison which proves so disastrous to the nervous system." From an experience of over 500 necropsies made on paralytic patients I have been surprised at the rarity of severe tertiary skin and visceral lesions as compared with the cases of true syphilitic brain disease. Arterio-sclerosis, in the form of fibrotic plaques of the aorta, is, however, very common in paralytic dementia, which, however, is now regarded as a parasyphilitic affection. Again, although paralytics in the prodromal stages of the disease often give themselves up to debauchery and sexual congress with loose women, I have never seen or had my attention called to a case of general paralysis among the vast numbers in the London County Asylums that showed a primary sore or a secondary rash. Krafft-Ebing noted the same fact, and concluded that the reason was that every paralytic had had syphilis and was therefore immune. He caused this hypothesis to be put to a crucial test. Nine cases of general paralysis were selected that gave no history and showed no signs on the body; these patients were inoculated with the virus of a typical hard chancre and watched for 180 days. They presented no signs of infection. The only assumption is that they were immune owing to previous infection, and that they possessed a power of resisting the action of the syphilitic virus. The concordance of this result with the statistical data of antecedent, inherited, or acquired syphilis in cases of tabes and general paralysis given later, led to the widespread acceptance by neurologists of the view that tabes spinalis or cerebralis (general paralysis) is essentially of syphilitic origin. No syphilis, no tabes. Only a few eminent neurologists, such as von Leyden, refuse to accept the syphilitic origin of tabes, and one of the arguments employed against this view is that antisyphilitic remedies are of no avail in preventing the disease or arresting its progress. Moreover, we know that many people develop general paralysis or tabes dorsalis, even though they have been treated with mercury systematically from the primary infection onwards. So much has this impressed some authorities that they have even asserted that over-mercurialization is the cause of the disease in question. The average time which elapses between the primary sore and the onset of tabes and general paralysis is, according to the observations of Schuster, the same in persons who have been thoroughly treated with mercury and those who have either not been treated at all, or only insufficiently. All the facts, therefore, go to prove that the syphilitic virus has in some way or other damaged the durability of the neurones, so that systems or communities die prematurely. It has been observed that Fournier includes other functional and organic diseases of the nervous system among the parasyphilitic affections. We have less knowledge concerning them and their pathogenesis. I have, however, seen cases of general paralysis in which the motor symptoms were most pronounced and the dementia slight, in which all the deep reflexes were exaggerated, and the plantar extensor reflex present on both sides—a very unusual occurrence in the ordinary paralytic dementia. At the autopsies there was a well-marked sclerosis of the crossed pyramidal tracts without any coarse lesion in the brain and cord to account for it. I have also seen cases of progressive amyotrophic lateral sclerosis occurring in the subjects of syphilis which appeared to be the result of the progressive degeneration of the whole motor efferent tract from cortex to periphery without any sensory disturbance. Some of the cases of Raymond cited by Fournier (*les affections parasyphilitiques*) with sensory troubles, namely, rheumatic pains and paraesthesiae, are obviously, from the account given of the appearances of the spinal cord *post mortem*, cases of subacute gummatous meningitis involving the roots. The serum diagnosis and the examination of the cerebro-spinal fluid bio-chemically and microscopically will permit us in future to determine whether syphilis is the essential cause of these degenerations. For every nervous disease, whether functional or organic, occurring in a person who has suffered from syphilis is not necessarily syphilitic in origin, yet when we consider the profound influence the virus has upon the blood and tissues of the whole body, it is not illogical to assume that any disease, local or constitutional, functional or organic, occurring in a person who has acquired or inherited syphilis may possibly have found a suitable soil for development, owing to the diminished vital resistance of the tissues occasioned by such a potent and persistent poison as syphilis. Thus syphilis, although not a direct agent in such a case, by its devitalizing influence and the impoverishment of the lipoids, becomes an important indirect causal factor of the disease in question. There are many known ways in which syphilis can cause functional disturbances of the nervous system and lead to the development of neuroses and psychoses. The theory of the possibility of the syphilitic virus, or the lipoid products of its activity, stimulating the neurons to increased dissimilative action and exhaustion, has been shown to have considerable support from recent investigations. There are, however, other conditions which are well known—namely, the change in the blood and blood vessels, and in the lymph and lymph channels. Long ago Virchow pointed out that in syphilis there is a diminution of red blood corpuscles and a hyperalbuminosis. Later, Schulgowski, Hafter, and Laacke described a considerable fall in the red blood corpuscle count. In the secondary stage Martin and Hiller, also Letzius, showed that not only is there a diminution in the number of red blood corpuscles, but also an absolute diminution of the haemoglobin content of the corpuscle. Anz found, besides the fall in number of the red blood corpuscles, an increase of the white, so that one can speak of a relative and absolute leucocytosis. Later observers showed that there was a diminution of polynuclear leucocytes, and that the leucocytosis was due to a great increase of lymphocytes, which increase we may associate with the polyadenitis. Further, there is an increase of eosinophiles. These changes in the blood in the secondary period increase in intensity with each fresh series of syphilitic manifestations, and diminish as they diminish; moreover, the blood changes disappear with the disappearance of the secondary symptoms under antisyphilitic treatment. Fournier long ago described the favourable influence of mercury upon the blood formation; clearly, then, the mercury, by its influence upon the productiveness of the syphilitic virus, allows a return of the normal haemopoietic formation, or arrests a too rapid haemolytic action. The French authorities were the first to call attention to a syphilitic anaemia, and to point out that iron had no influence thereon. The ebb and flow of the amount of oxyhaemoglobin is correlative to the flow and ebb of lymphocytes, which might indicate that, with the pouring out of an abundance of lymphocytes from the lymph stream into the blood stream, there was associated a pouring out of the virus that occasioned the irritation and hyperplasia of the lymph-cell elements. Hoffmann asserts that he has observed the serum of a syphilitic patient produce immobility and agglutination of the spirochaetes. Perchance it is that when the virus can no longer be neutralized by the defensive reaction of the blood serum embolic capillary effects are produced, causing papular eruptions of the skin, mucous tubercles, and occasionally meningitis. Selenew demonstrated blood changes before the outbreak of the secondary exanthem, therefore before the secondary incubation stage. It is probable that before the eruption becomes visible, microscopic changes have occurred in the affected cutaneous capillaries and adjacent skin structures, much in the same way as in the primary sore; consequently, we should expect a blood change to precede the eruption. The anaemia may be due to a haemolysis owing to an unloosening of lipoid substances (lecithins and cholesterin) from the red corpuscles by the action of a toxic substance of the virus acting as a lipolytic ferment disintegrating the osmotic membranes or by chemical interaction in the lecithin and cholesterin complex, forming the osmotic membrane producing physical changes by which the membrane becomes permeable even to the large haemoglobin molecules (Fig. 12). It may be supposed that the protein stroma of the corpuscle is covered by a film or membrane formed of this lipoid substance, and the virus acts upon it in such a way as to dissolve, dissociate, or destroy the membranous film covering the corpuscle, and causing thereby a liberation of both the haemoglobin and the lipoid substance into the serum. According to Levaditi and Yamanouchi, the lipoids serving for serum diagnosis not only exist in the liver, but in other organs, the brain and the red corpuscles.

They are probably complexes in which lecithin enters largely. The anaemia may, however, be due to interference with the functions of the haemopoietic tissues; in support of this is the fact, established experimentally by Neisser, that the red marrow and spleen are especially rich in the virus. Since mercury can rapidly improve this blood dyscrasia, it is probable that it does so by arresting the development of the *contagium vivum* in these blood-forming tissues. In congenital syphilitic children haemoglobinuria may occur, and this may be due to the existence of a large quantity of the virus in the blood causing haemolysis of the corpuscles. Many authorities working at the subject of metabolism in syphilis have shown that the nitrogen metabolism is altered. "Von Boick, Stephanow, and Bjelakow found that the assimilation of nitrogen of food sinks, and the percentage of extractives increases considerably in relation to the urea" (Max Nonne). This would indicate an altered dissimilative metabolism. There is therefore considerable evidence to show that causes exist which render the organs of the body more vulnerable, not only to other infective agencies—for example, tubercle causing scrofula—but also to the evolution and development of neuroses and degenerations by a devitalizing influence on the tissues by the unloosening of lipoid substances. We have now to consider how far do these researches, biological and bio-chemical, help us in determining the etiology of tabes and general paralysis.

Etiology of Tabes.

(Tabes Dorsalis, Tabes Optica, Tabo-Paralysis, General Paralysis.)

The Wassermann method of diagnosis has come to strengthen and confirm the belief of many neurologists like myself: "*No syphilis, no tabes.*" This was previously based solely upon statistics and observations relating to the etiology of the disease. Moreover, the etiology and the serum diagnosis are reciprocally supporting not only of the parasyphilitic theory, but also of the view that there is one morbid entity which may be described as tabes—a view first put forward by Fournier, and which I have supported by comparing the clinical notes, and in a large number of instances the *post-mortem* results (with microscopic investigation) of 60 cases of tabes dorsalis and 60 cases of tabo-paralysis. I came to the conclusion that Fournier was justified in asserting the identical relation of the etiology, the close relationship and overlapping in the symptomatology and pathology, and that he was right when he destined them one day or other to be grouped in a single pathological entity; for Ferrier, in his admirable Lumleian Lectures on tabes dorsalis, says: ". . . and here I would express in concurrence with Fournier, Mott, and many other neuropathologists of the present day, my belief in the essential pathological identity of tabes and general paralysis. They are, in my opinion, merely different aspects of the same polymorphic disease." Both are tabetic, or wasting, affections of the sensory protoneurons in the one case, and of the cortical neurons in the other. The essential etiological factor is the same, and the average time elapsing between the primary infection and the onset of the degenerative process corresponds in the two diseases. Fournier remarks that the establishment of the syphilitic origin of tabes dorsalis, from his experience, would necessarily end in the application of the doctrine to general paralysis. In fact, there are so many symptoms in common and so many analogies of evolution and termination associating these two diseases, that it was quite natural to conclude the etiology of one from that of the other.

I have endeavoured to show in the *Archives of Neurology*, vols. i and ii, and elsewhere, all the evidence of the etiology of tabes and general paralysis tends to prove that there is in all probability one essential cause—syphilis, acquired or congenital; and that there are a number of contributing factors, any one of which by itself, or even in combination with others—for example, sexual excess, mental stress, heredity, injury, etc.—is not capable of producing the disease. The fact that congenital syphilis leads both to tabes and general paralysis at so early a period of life as to exclude most of the contributory factors except heredity, is an argument in favour of syphilis being the essential cause. Moreover, males and females are affected with juvenile optic tabes, tabes, and general paralysis in equal numbers. Thus, of 500 general paralytics that have died and been examined *post mortem* at Claybury, there were 5 males and 5 females who suffered with juvenile general paralysis; that is, 2 per cent. of the total. The study of heredo-syphilis in relation to these parasyphilitic affections is especially convincing as to the essential cause of tabes and general paralysis being syphilis. This has been brought home to me in a very convincing manner in the large number of cases in which I have studied the family histories. I will cite a few examples: A young man was admitted to Claybury suffering with what were termed epileptic fits; the seizures did not cease, and he died; externally there was nothing on his body to show that he had congenital syphilis; his liver, however, showed typical signs of congenital syphilis, and the brain was typical of general paralysis. A brother in Caterham Asylum presented the facies of a typical congenital syphilitic. I ascertained that the father died of general paralysis, and the mother, when I interviewed her, was in the early stage of dementia. I was asked to see recently at Hanwell a young girl who, blind from optic atrophy, had later become demented. I was informed there were no signs of syphilis on the body, and she was one of a large grown-up family. Fortunately the mother was there at the time. I therefore had the opportunity of interrogating her. I found it was quite correct that she was one of a large family, but I also ascertained that, prior to the birth of this child, there had been several miscarriages and stillborn children, that this child had suffered with snuffles and a rash, that she had taken it to the hospital, and grey powders had been given. When the rash disappeared she ceased to attend further. As so often happens in these cases, the mother had not apparently suffered, and showed no signs of syphilis.

Another example I may mention. A juvenile paralytic boy was admitted to Bexley and died there. Recently his brother has been admitted with commencing signs of the disease. The former had Hutchinson teeth, but no history of syphilis could be obtained from the father. This man died in Guy's Hospital. I wrote to the registrar, and I received the information that he had had syphilis. Perhaps the most convincing case is the following one, which died in Claybury about a year ago. A boy was admitted with dementia, contraction of all four limbs, and epileptic seizures. Dying not long after admission, the *post-mortem* examination revealed very advanced general paralysis. There were no signs on the body, and the boy up to 12 years of age was bright and intelligent, then mental symptoms set in and steadily progressed. A history from the father showed that five years before marriage he had contracted syphilis, and, in spite of long treatment by an eminent physician, had not been cured, for the first child died within forty-eight hours of birth, the second within twenty-four hours, the third suffered with late interstitial keratitis, and later nerve deafness; then came the patient, and afterwards healthy children. I could multiply these instances, for altogether I have notes of some 60 cases, and in the great majority (over 80 per cent.) there are indubitable signs or an unquestionable history, as in the above cases, pointing to hereditary syphilis. I have found no case in which I could *certainly* exclude syphilis. Particularly common is optic atrophy, which takes these children to the blind school, and there they develop fits or signs of mental deterioration, and are next sent to the asylum.

The cases of tabes occurring in heredo-syphilis are not nearly so numerous as the cases of general paralysis; the ataxy is usually not very marked, optic atrophy is very common, and tabo-paralysis is met with often associated with optic atrophy; optic atrophy occurs also pretty frequently in the paralytic dementia of congenital syphilis. I have seen two brothers so affected, and die after developing the signs of progressive dementia.

The period of time elapsing between the evolution of tabes and general paralysis and the acquired infection varies considerably; it may be from three to thirty-one years; but the average is eight to fifteen years. The life of the neurons has been reduced, and the time that will elapse between infection and the onset of decay depends upon the intensity of the virus and the inborn resistance of the nervous system, together with other supplemental factors causing stress. In these hereditary cases it is surprising how frequently we find one of the parents, and occasionally both, suffering

from paralysis or tabes; this implies an inborn tendency to this degenerative condition. Now it may be asked, if twenty-five years, or even more, can elapse in an adult between the acquirement of syphilis and the onset of the symptoms of parasyphilis, why should not the same long period occur occasionally in congenital syphilitic cases, so that instead of the first symptoms commencing at puberty they are not manifest till adolescence, or even considerably later? Nonne relates a case of a workman, aged 32, who had suffered for two years with lightning pains and had never been infected with syphilis or addicted to drink, and who presented all the typical signs of ataxy. He had been treated in the hospital for severe hereditary syphilis. I have seen a somewhat similar case; moroover, I have occasionally observed similar cases of general paralysis—for example, a man aged 28 died recently in one of the London County Asylums of very advanced general paralysis. The disease was first manifested at the age of 18, when he had a fit. His character was strange; he married, had one child born dead, and afterwards his wife left him. He had no signs of syphilis on his body, but I found that his father had died eight years previously in Claybury Asylum. In my Croonian Lectures upon the Degeneration of the Neuron, I remarked that it is very probable that some of the cases occurring in adults in which syphilis can with certainty be excluded, may still owe the disease to an inherited syphilitic taint. It is not even necessary, as quite one-half of the juvenile cases show, that they should exhibit any external signs of congenital syphilis, for many of the juvenile cases which I collected were proved beyond doubt to be born of syphilitic parents, although manifesting themselves no external signs of syphilis, whereas brothers and sisters exhibited very definite signs. A case of general paralysis died at Banstead Asylum which had previously been under the care of Dr. Percy Smith at Bethlehem Hospital. This woman had characteristic signs of congenital syphilis, but she did not manifest symptoms of progressive dementia till she was 30 years of age. The patient was an unmarried woman, and there was no reason to believe that she had acquired the disease. Recently Christian Müller has put forward the same hypothesis to explain those cases in which no history of acquired syphilis can be obtained. He describes two cases of women (virgins) who were the subjects of well-marked signs of congenital syphilis, and who died of general paralysis at the ages of 42 and 43 years. The symptoms were not noticeable until a year or two before death.

Dr. Ferrier has in a masterly manner reviewed the evidence which points to syphilis being the essential cause of general paralysis and tabes, and, in conclusion, I cannot do better than quote him: "One might multiply arguments in favour of the causal relation between syphilis and tabes, but they are unnecessary. For those above related, singly and collectively, leave, in my opinion, little room for doubt that tabes and general paralysis are in all cases of syphilitic origin, and that tabes, *per se*, is as much a proof of antecedent syphilis as a gumma of the skin."

Although syphilis is the essential cause, yet, as Fournier showed, tabes and general paralysis are not syphilitic, but an outcome of syphilis, and the riddle is still unsolved why only about 3 to 5 per cent. of the persons infected with syphilis should subsequently suffer with one of these degenerations of the nervous system termed parasyphilitic. But only 10 to 15 per cent. of persons suffering with diphtheria develop post-diphtheritic paralysis; these are usually cases in which the local infective process was mild and often unnoticed; in that respect, like parasyphilitic affections, which more often than not follow mild and even unrecognized primary infection and secondary symptoms. Is it because the virus is attenuated or modified, and thereby has acquired a special neurotoxic action, or is it because in a small percentage of individuals the cells of the body, *especially the cells of the nervous system*, react to the virus in a hypersensitive manner? As already indicated, there are facts which suggest the possibility of a certain form of virus with a neurotoxic action. Thus Babinski remarks that it seems possible that a syphilitic virus may sometimes be endowed with a particular aptitude for attacking the nervous system; he reports the case of two students who were infected the same day by the same woman; both died fifteen years later of general paralysis; these students were, however, related. I have recently heard of two professional men, not related, who acquired syphilis about the same time from the same nurse; ten years later they developed general paralysis. Marie and Bernhard relate the instance of two men who were infected from the same source, and ten years later suffered with tabes. Erb narrates an instance of four patients infected by the same woman, who later became the subjects of either tabes or general paralysis, whilst a fifth, who had connexion with the woman but was not infected, did not suffer with any disease later. Probably the most striking example supporting this theory of a special neurotoxic virus has been afforded by Brosius, who relates that seven glass-blowers suffered with chancre of the lip, and out of five who ten years later came under observation, four suffered with either tabes or general paralysis. If we accept the fact that a spirochaete is the specific causal agent of syphilis, it is conceivable that there may be varieties of this organism, as there are of the malarial parasite or trypanosome. Again, the organism may become attenuated or modified in its passage through the bodies of certain individuals, or it may be attenuated or modified by the action of mercury. It may thus happen that the virus may vary in different cases of infection. This, however, is speculation, and is not supported but rather contraindicated, so far, by experiments on animals. For although lower apes have the disease in a mild form when inoculated from the human being, yet the syphilitic virus of an infected *Macacus rhesus*, when used to infect a chimpanzee, appears to have lost none of its original virulence; for the chimpanzee suffers as badly as if it had been infected direct from the human source of the virus. We are probably, therefore, on more certain ground in attributing the variation of the effects which will follow infection not to the variation of the virus, but to the reaction of the individual himself, and we may represent this in the form of an equation:

$$\text{Symptom complex } x = \frac{\text{V}}{\text{R}} = \frac{\text{virus.}}{\text{resistance.}}$$

If the virus V is constant, R resistance must vary. But R is made up of a number of factors, some of which we can ascertain, but it is generally impossible to decompose R into all its constituents. Roughly speaking, we may say that it is made up of what a man is born with, what has happened after birth, and what will happen in the future to resist the reaction of the specific virus, which in the majority of instances is of lifelong duration. Most authorities agree that with the widespread syphilization of a race for many generations, the disease tends to assume a milder form; the effects of the disease are not so severe, and a widespread tendency to an inherited immunity has been brought about. The conversion of a rural into an urban population has done much towards racial syphilization and to the diffusion of a tendency to inherited immunity, and the begetting thus of a mild form of disease. But, whereas there are fewer cases of severe syphilis than formerly, there are more cases of tabes and general paralysis. The interesting description given by Colonel Lamb of the syphilization of the natives of Uganda shows how severely a race previously free from this disease suffers from malignant skin, bone, and visceral disease. He also points out that tabes is very rarely seen. If we consider some facts concerning congenital syphilis, we must come to the conclusion that immunity is possible; how, otherwise, can we explain the law of Profeta, namely, the non-syphilitic child of a syphilitic mother does not acquire syphilis from the syphilized mother who suckles it? Again, the child may be syphilitic and the mother may show no signs of syphilis; the mother does not acquire syphilis by suckling that syphilitic child, whereas a wet nurse does. In the former case the fetus has acquired some antitoxin, or something from the maternal blood which has stimulated its own tissues to react against the virus; in the latter (Colles's law) the mother has derived from the blood of the syphilized child an antitoxin or something (not the living contagium) which has stimulated her tissues to react against the virus so effectively that she cannot be infected. There is no reason to suppose that the germ cells do not participate in this reaction, seeing that every cell in the body is subjected to the sensitizing influence of the chemical products of the virus by means of the blood and lymph. The experiments of Ehrlich have been quoted by Neisser as opposing the view of inherited immunity; on the

other hand, Conradi's recent experiments on lyssa support it. The histories I obtained in a large number of cases of juvenile general paralysis and cases of congenital syphilitic nervous disease revealed the fact that the mother very frequently had miscarriages, abortions, and typically syphilitic children without herself suffering at all, or presenting any signs of syphilis. In two instances the mother died of general paralysis; in a considerable number of instances the father died of this disease. As a general rule, the result of successive conceptions is as follows: Miscarriages, abortions, dead children, children dying in infancy—often of meningitis or hydrocephalus—children who later in life suffer with nervous affections—for example, nerve deafness, paralytic dementia, optic atrophy, and tabes—and, finally, healthy children. Such a chain of circumstances would undoubtedly indicate that either the virus was becoming attenuated or the resistance of its action was increased. In any case, we have reason to suppose that the children who were born with a syphilitic rash would be immune to reinfection, also those who afterwards suffered with parasyphilis; Krafft-Ebing's observation supports this premiss. It is probably a question of the degree of immunity to reinfection that would obtain in the presumably healthy children that followed the diseased ones. But such a chain of events does not always occur, for sometimes children are born with signs of heredo-syphilis after the birth of several healthy children; also parasyphilitic children may be born after the birth of several healthy children. This may be explained by the fact that the specific virus has become active again in the mother, which inference is negatived in most instances by the fact that she herself may say that she has been in good health, and no signs of the disease can be discovered in her. Another explanation offers itself, and it is that the specific virus may have attacked one ovum and spared another. Levaditi has seen the spirochaete within an ovum. No two individuals, even of the same family, are born alike, because the germ-plasm out of which they were formed may be similar, but is not the same; one inherits ancestral tendencies which the other does not; and it may happen, therefore, that a child born later than the healthy children possesses less inborn resistance to the action of the virus; consequently, manifests congenital syphilis or, later, parasyphilis. How can we explain this process of decay of particular groups, systems, and communities of neurons? Why should we have optic atrophy in one individual, atrophy of the spinal portion of the sensory protoneurons in another, decay and atrophy of the cortical neurons in a third, and, in many instances, a decay and atrophy of the whole nervous system? We cannot suppose that it is caused by the random metastasis of the syphilitic organism in the membranes, or coats of the blood vessels, conveyed by the lymph or blood stream, as is probably the case in the true syphilitic lesions of the brain and spinal cord. Everything points against this, for, although parasyphilitic affections present the most varied signs and symptoms, there is one sign usually present which is, for all practical purposes, only met with in parasyphilis, namely, the Argyll Robertson pupil. No coarse random lesion will explain the constancy of this phenomenon; moreover, this condition, although a sign of syphilitic infection, does not occur in true syphilitic brain disease. Spirochaetes have never been found in the cerebro-spinal fluid nor have antigens. Antibodies are found proportional to the extent of neuronic decay in tabes and general paralysis.

I think all the facts are against the views of Lesser, Bose, and others, that these late manifestations of degeneration of the nervous system may be regarded as quaternary syphilis, a very late effect of the virus comparable with syphilitic orchitis, glossitis, and other sclerous lesions. According to this view, we should be compelled to consider the meningeal and perivascular infiltrations and the glia cell proliferation as the cause of the degeneration. But there are many reasons why we cannot accept this hypothesis. The view I take of the process is that parasyphilitic disease of the nervous system depends upon two factors, intrinsic, innate, and extrinsic, acquired—the soil and the seed; the vital resistance and the specificity of the virus, $\frac{V}{R}$.

All those conditions which may be inherited or acquired, which tend to active metabolism of systems, communities, and groups of neurons functionally correlated, owing to those conditions of stress causing in one individual spinal neurasthenia, in another cerebral neurasthenia, will, in conjunction with the effect of the syphilitic poison, cause the nerve cells to exercise an abnormal dissimilative metabolic activity.

Ehrlich points out that we cannot suppose that the cells of the body possess *per se* an executive defensive capacity to neutralize the noxious effects of all forms of organisms, and his work on haemolysins shows that the haemolysin for the corpuscles of a particular animal only occurs after incorporation of the molecules of those corpuscles. But we may suppose that there is an *inherent* aptitude for the cells of the body of certain individuals to adapt themselves readily to defence against the action of the syphilitic virus in a race that has been widely syphilized for generations; consequently, a larger number will have a mild form of the disease. Cases of tabes and general paralysis occasionally arise within three years of the primary sore; possibly this may be due to an inherent hypersensibility to react to the poison. Dr. Byrom Bramwell has recorded a remarkable case of tabes which came on ten months after infection; it would be interesting to investigate the family history and past personal history of these cases to ascertain whether or not it was a second infection.

The nerve cells are perpetual elements incapable of regeneration, highly differentiated, and complex in structure and function; their centre of nutrition is the nucleus, and when decay sets in, the regressive process attacks first the fine twigs and branches of the tree, the dendrites and dendrons, and the rootlets; in fact, the process is an inversion of its growth and development. But what should cause this premature decay and lack of durability, for the specific energy of the whole of the neurons in the healthy body is sufficient to last until the vital spark dies out? We know the more prolonged duration of infectivity of the syphilitic virus as compared with other contagious diseases, also that one attack of syphilis confers immunity during the rest of the individual's life; moreover, the experiments of Krafft-Ebing are important to remember in this respect. The nerve elements being perpetual and having acquired a habit of increased metabolic activity, will continue it during life, and will contribute to the excess of lipoids in the blood. When there is no longer metabolic equilibrium, and decay sets in, these lipoid proteid complexes are thrown off in increasing numbers; this seems probable from the fact that in general paralysis and tabes the quantities in the cerebro-spinal fluid increase with the progress of the decay. The process of decay will manifest itself in the earliest stages by an increased irritability and functional activity of the nervous structures, often manifesting itself in a *hyperaesthesia sexualis*, emotional exaltation and, not infrequently, in striking intellectual activity, followed in each case by exhaustion and loss of function. In my second lecture I referred to the fact that the lipoids may be products of nuclear activity and the highly *phosphorized* nuclein may be really the source of vital action. We can, therefore, understand how detrimental a hyperaesthesia sexualis is to the vitality of the body by the fact that it occasions a loss to the body by the sperm of nuclein substances highly charged with phosphorus.

The uselessness of antisyphilitic remedies is thus accounted for; indeed, they are generally positively injurious in true tabes and general paralysis because they lower the vital energy of a system which has over-immunized itself against the syphilitic virus. The only hope of doing any good is by an early diagnosis of the disease and suppression of all those exciting causes which use up the nervous energy and tend to overturn the normal metabolic equilibrium of the nervous structures. Other factors come in, determining the location of the degeneration, and although microbial infections and microbial toxaemias are not directly responsible for these parasyphilitic affections, yet they may be an exciting agent in the onset of the disease to the aggravation of the symptoms and the acceleration of the progress of neural decay and the fatal termination. I have often observed when influenza, dysentery, or pneumonia were prevalent in the asylums a number of general paralytics died after a succession of epileptiform or apoplectiform

seizures, and I have found, *post mortem*, that they were suffering from one of these morbid infections. It is a common thing to find on the *post-mortem* table patches of bronchopneumonia, the appearances of which would accord with clinical notes in the case-book reporting the occurrence of seizures; and, if the brain be examined microscopically, it is easy to prove that these fits may correspond with acute degenerative changes, doubtless caused partially by congestive stasis and partially by a toxic condition of the blood exciting and accelerating the process of neural decay. Bacterial invasion, *secondary or terminal*, of the organs of the body of a *non-specific* nature, therefore, may accelerate the morbid process of decay or bring about a fatal termination.

In conclusion, I thank the Fellows for their kind attention, for I am not unmindful of the fact that many distinguished men have preceded me in the delivery of the Morison lectures. I feel that I have dealt imperfectly with a very difficult albeit important subject still in its infancy; and I can only hope that the words of the old philosopher, Lucretius, may come true, "that one thing after another will grow clear, and dark night will not rob you of the road, to keep you from surveying the utmost things of Nature; in such wise things will light the torch for other things."

BIBLIOGRAPHY.

Blumenthal: *Neurol. Centralbl.*, 1908, p. 1006.
Fournier: Les affections parasyphilitiques.
Max Nonne: Syphilis des Nervens-systems.
Hoffmann: Op. cit.
Neisser: Op. cit.
Roux and Metchnikoff: Metchnikoff ibid.
Krafft-Ebing: Discussion upon General Paralysis. Internat. Congress, Moscow. Ref. *Neurol. Centralbl.*, 1897.
Schuster: Hat die Hg. Behandlung der Syphilis Einfluss auf das Zustandekommen metasyphilitischer Nervenskrankeheiten. *Deut. med. Woch.*, December 12th, 1907.
Virchow: Ueber die Natur constitutionell syphilitischer Affectionen. *Virchow's Archiv für path. Anat.*, Bd. xv, 1858.
Schulgowsky: Blutuntersuchungen mittelst des Haematometers von Hayem. *St. Petersburg med. Woch.*, 1878.
Laache: *Die Anaemie*, 1883.
Martin and Hillier: Ref.
Letzius: Max Nonne, ibid.
Mott: *Archives of Neurol.*, vols. i, ii, iii; Croonian Lectures "The Degeneration of the Neurone," *Lancet*, 1900.
Ferrier: Tabes Dorsalis. The Lumleian Lectures, 1906.
Müller, Christian: *Münch. med. Woch.*, September, 1908.
Lamb, Colonel: Article, Syphilis in Uganda, *Lancet*, 1908.
Conradi: Ist die erwörbene Immunität vererbar? *Centralbl. für Bakt.*, Bd. xlvi, Nos. 1 und 2.
Krafft-Ebing: Ibid.
Lesser: Zur Etiologie und Pathologie des Tabes, speciell ihr Verhältnis zur Syphilis, *Berl. klin. Woch.*, 1904, No. 4.
Bose: Les maladies bryocytiques. *Centralbl. für. Bakt.* Abtrüg, Bd. xlii, Heft. 5.
Lesser: Ref. Bose.
Ehrlich: Croonian Lectures. *Proc. Roy. Soc.*, 1904.
Bramwell: An Analysis of 263 Cases of Tabes. BRITISH MEDICAL JOURNAL, 1908; *Lancet*, November 14th, 1908. Report of Meeting of Edinburgh Medico-Chirurgical Society.

A CASE OF ACUTE ASCENDING PARALYSIS.

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LANDRY'S disease is sufficiently uncommon to make the report of a case which recently came under my care worthy of publication.

The patient, a man aged 24 years, had had no illness during the last few years, except an occasional cold, which did not incapacitate him from work. He got wet cycling a week previous to my seeing him, but followed his occupation during the next four days and did not feel at all unwell; on the fifth day he remained at home complaining of vague pains and a feeling of general weakness. He did not improve, and I saw him two days later.

I found him sitting on a couch downstairs still complaining of pains in his shoulders, legs, and back, the latter being the most severe and referred to the sacral region. He also complained of a feeling of numbness from the middle of the body down to the feet and of weakness in the legs, but there was no girdle pain, nor at this time any definite paralysis. He could rise up from the couch and stand or walk without assistance, but said he did not feel safe on his feet. There was no difficulty in breathing or swallowing, and no rise of temperature. The knee-jerks were entirely absent.

The next day he still had pain in the back and said it felt weak, and the weakness in the legs had progressed to a definite paralysis, so that he could not get up or stand without assistance. Both legs and feet were affected to about the same extent, but, judging from the slight motion remaining, the posterior muscles were paralysed to a greater extent than the anterior. He was unable to turn over in bed and felt easier in a chair, where he sat huddled up, often requiring support to maintain his position or help in changing it. He now complained of some weakness in the arms, and his voice was weak and husky; he had some difficulty in clearing the throat, and cough was wanting in energy, and there was some difficulty in swallowing. The abdominal muscles were flaccid, and seemed to have lost power, and probably the intercostals, the quadratus lumborum, and the muscles of forced expiration were beginning to share in the paralysis. The movements of the chest were impaired, but there was no dyspnoea. Sensation in the paralysed parts was unaffected: he could feel the slightest touch of a pin or the finger, and pain when pricked with a pin. The muscles felt of normal firmness, and were not tender when handled.

On the third day the paralysis had rapidly extended; the legs were almost motionless, but he was still able slightly to extend them at the knees. He begged to be out of bed, and sat more huddled up from paralysis of the back and abdominal muscles, and had to be supported by pillows, or, when I saw him, by a friend on either side. He was unable to raise the arms at the shoulders, but could flex and extend the elbows, although not able to hold a cup with his fingers or to carry it to his mouth. His head hung forward. He spoke in a whisper, but beyond that the speech was not affected, and no paralysis of the tongue, lips, or face was observed. The loss of voice was probably due in a great measure to paralysis of the expiratory muscles. He had great difficulty in clearing the throat of secretion, the power to cough and all expiratory efforts being almost entirely lost. There was much trouble in swallowing, but no regurgitation of fluid through the nose, and the soft palate, as far as could be judged, was not affected, the dysphagia being due to paralysis of the muscles presiding over the act of swallowing. He was able to swallow small pieces of jelly better than liquids. He had no marked dyspnoea and no violent respiratory struggles. No ocular paralysis was observed. About 11 p.m. he was almost asphyxiated by the accumulated secretion in the throat which he was unable to expel.

On the fourth day I found he had passed a very bad night, the secretions in the throat causing much distress. He could not clear his throat, and swabs or sponges had to be used. He lay almost motionless, and during the day became rapidly worse. The movements of the chest were quicker and feebler, and the paralysis affected the respiratory muscles—pharynx and larynx—more and more. Swallowing became exceedingly difficult, but he was still able to take a little jelly. His mental faculties were quite clear, and down to this time the temperature was never half a degree above normal. At 10 p.m. it rose to 102°.

He died quite suddenly about 1 a.m. next morning. About half an hour before death the sphincter became paralysed and he passed faeces involuntarily. There was no convulsion or struggling, and his mental condition was quite clear to the end; in fact, he made himself understood to the nurse within a few minutes of death, which appears to have been due to asphyxia.

No treatment seemed of any avail. An autopsy was not obtainable.

The chief features of the case, apart from its rapid progress, were:

1. No obvious cause, beyond getting wet.
2. Absence of knee-jerks from the onset, before any actual paralysis was noticed.
3. No rise of temperature until within three hours of death.
4. Sensation unimpaired, the only sensory symptoms being numbness and vague muscular pains.
5. Perfect consciousness of his state to the end.
6. Rapidity with which the paralysis affected the acts of coughing, all expiratory efforts, and swallowing.

With regard to the order of invasion, after the feet and legs became paralysed the progress of the disease was so rapid that it was difficult to follow the exact sequence, except (*a*) the posterior muscles of the legs and thighs appeared to be affected before the anterior or to a greater extent, and (*b*) the muscles moving the upper arm on the scapula before those of the forearm.

As a note of distinction from acute disseminated myelitis I would mention (1) the absence of anaesthesia or any impairment of sensation; (2) normal temperature except just before death; (3) the freedom of the rectum and bladder until within half an hour of the end.

THE reports on the therapeutic results with radium which have come from Germany seem scarcely so optimistic as those from Paris. Dr. H. E. Schmidt of Berlin (*Jahrbuch ueber physikalischen Medizin*, p. 193) says that in all cases of naevus treated by him he has always found a tendency in course of time for the redevelopment of telangiectases, generally some months after the discontinuance of the treatment, and he believes that in such cases treatment by Finsen light or electrolysis is necessary to complete the cure. He speaks of one specially good result which he obtained in a case of naevus pigmentosus pilosus in a child. The growth was on the left cheek, about the size of a shilling, dark brown, and hairy. After prolonged treatment the naevus disappeared, leaving only a not very noticeable scar, but here and there dilated vessels began to appear in it, yet by following up the cure with Finsen-light treatment most of these dilated vessels were removed, and the final result was very good.

ARTERIAL BLOOD-PRESSURE RECORDS BEFORE AND AFTER MUSCULAR EXERTION.

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THERE exists a remarkable divergence of expert opinion on the question as to whether the results of systolic arterial blood-pressure readings by the method of circular compression represent in all cases the true blood pressure. Those who hold the opposite opinion consider that, more particularly in cases where these readings reach the higher limits which are met with—say from 200 to 300 mm. Hg—the manometric index records something beyond the pressure of the blood itself; in other words, that a part of the force spent in obliterating the lumen of the vessel is due to the resistance of the arterial wall itself. Whilst the majority of those who have worked in this domain of clinical medicine favour the former view, yet several observers—among whom may be mentioned Drs. William Russell, George Oliver, and W. P. Herringham—have given reasons for dissent from the prevalent opinion.

It would seem that light may be thrown on the question, even though we cannot hope thus to actually prove the matter, by observations taken before and after violent muscular exertion in healthy men, seeing that it can hardly be maintained that the blood-pressure readings as measured after such exercise can be influenced by the resistance of the arterial wall. For, in the first place, there is in such conditions a state of vaso-dilatation, so that the effect of hypertonic contraction can be excluded, and, secondly, it is premised that the subject observed is free from arterio-sclerosis. If, then, on the one hand, as the result of muscular exertion of this kind, a considerable arterial blood pressure should be reached, this would point to the possibility of an equally great height being attainable as the result of disease; but if, on the other, but a moderate elevation—say well below 200 mm. Hg—be met with, this would afford even stronger evidence of the improbability that the heart in morbid conditions would be capable of overcoming pressures much greater than this.*

The only observations made on these lines which I have met with in the literature are as follows:

T. C. Janeway found, in an experiment with the Erlanger apparatus (5 cm. armlet) on a healthy young man of 26 years, a rise of pressure after he had run up three flights of stairs = 40 mm. systolic and 20 mm. diastolic, the observations being taken during the sitting posture.[1]

W. Russell says[2]: "I submit that the 20 mm. rise after violent exercise marks the limit of the reserve of power of the normal average heart."

K. A. E. Fries made observations on the pulse and blood pressure in foot-racers.[3] He determined the pulse-rate and blood pressure in athletes in races of various lengths, using the Recklinghausen-Landergren modification of the Riva-Rocci sphygmomanometer to measure the latter. In general he finds that the pressure rises during the first 35 to 40 minutes of running (10 kilometres), and then falls to considerably below its original level. After one English mile the rise might be from 10 to 40 mm. Hg, the pulse then beating 120 to 160. After a "Marathon" race (40.2 kilometres) the fall below the pressure at starting might be from 10 to 20 mm. Hg.

* It may be urged in criticism that the mere fact of this compensatory vaso-dilatation during severe exertion lessens the work of the heart, and therefore renders my argument of little value, seeing that in disease there is frequently vaso-constriction. It is doubtful, however, how far this argument is a sound one.

My own observations were of two kinds. Through the courtesy of several of the competitors for the *Evening News* Marathon race last autumn I was enabled to make observations on them immediately before and after practice runs varying in distance from 3 to 13 miles. Secondly, I made observations on three hospital residents before and after they had run quickly down and up several flights of stairs. The results confirm in the main the observations quoted above.

Four competitors for the Marathon running race were examined. Oliver's haemomanometer was the instrument used (a modification of the Riva-Rocci method). The observations were taken on the arm, this being of course at the level of the heart, and the subject being in the sitting posture. The first observations were taken in every case immediately before the competitor started his course, and the last directly after he had finished (within a minute approximately). The details are given in the table at the foot of this page.

The readings of diastolic pressure and pulse were only approximate. Nos. I, II, and III were, apart from some cardiac hypertrophy, healthy men. No. IV exhibited some thickening of the superficial vessels and cardiac hypertrophy. No. I was very slightly dyspnoeic at the time of the second observation. No. II stopped running on account of his leg "giving"; no signs of exhaustion. No. III was dyspnoeic at the time the second observation was made, and seemed somewhat exhausted. No. IV was likewise rather dyspnoeic. The weather was very hot at the time of all the observations. It will be seen that three of the cases showed a rise of from 25 to 28 mm. systolic pressure, the diastolic either remaining constant or rising to a less degree. One case (No. II) showed a fall of systolic pressure. The observations on the hospital residents were taken under similar conditions to the others, the first being made in each case before the subject started running down and up several flights of stairs, and the last directly after he had finished (within about a quarter of a minute). The observations were taken on the forearm.

	Before Exertion.		After Exertion.		Difference between Systolic Pressures.	Difference between Diastolic Pressures.
	Syst.	Diast.	Syst.	Diast.		
	mm.	mm.	mm.	mm.	mm.	mm.
No. I. Mr. P. M., 24 yrs.	115	100	152	—	37	—
No. II. Mr. A. J., 28 yrs.	120	95	138	90	18	− 5
No. III. Mr. C. W., 23 yrs.	135	90	145	90	10	0

Syst. = systolic pressure. Diast. = diastolic pressure.

The diastolic readings were only approximate. No. I ran three times up and down stairs, No. III twice, and No. II once. Nos. I and III were markedly dyspnoeic as the result of the exertion; No. II was less so. At the time No. I ran the weather was very hot. The results show a rise of from 18 to 37 mm. systolic pressure.

CONCLUSION.

My results point to a rise of from 20 to 40 mm. Hg, corresponding to a height of perhaps 160 to 170 mm. as the measurement which is probably near the limit of reserve power of the normal heart. Consequently these observations at least throw doubt upon the idea that readings obtained in the neighbourhood of 300 mm. really represent true blood pressure.

REFERENCES.

[1] *The Clinical Study of Blood Pressure*, p. 122. [2] *Arterial Hypertonus Sclerosis, and Blood Pressure*, p. 54. [3] *Hygeia*, Stockholm, 1907, p. 1206.

	Before Run.			Distance Run.	After Run.			Difference between Systolic Pressures.	Difference between Diastolic Pressures.
	Systolic.	Diastolic.	Pulse.		Systolic.	Diastolic.	Pulse.		
No. I. Mr. G. B., 35 years ...	143 mm.	100 mm.	64	About 12 miles	168 mm.	100 mm.	100	25 mm.	0
No. II. Mr. H. A., 35 years ...	125 mm.	100 mm.	64	Between 12 and 13 miles	105 mm.	—	—	−20 mm.	—
No. III. Mr. F. C., 37 years ...	142 mm.	100 mm.	60	10½ miles	170 mm.	120 mm.	—	28 mm.	20
No. IV. Mr. T. D., 51 years ...	162 mm.	100 mm.	88	About 3 miles	189 mm.	100 mm.	108	27 mm.	

The results are recorded in millimetres of mercury = mm.

THE TREATMENT OF CHRONIC GONORRHOEA BY ANTIGONOCOCCAL VACCINE.

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THERE appears to be a general consensus of opinion that for systemic gonorrhoeal infection, the hypodermic injection of known doses of dead gonococci is the most effective means of treatment; but, so far as I know, no one has yet published his experience of treating chronic gonorrhoea by this method.

For the last twelve months I have been treating obstinate cases of gonorrhoea in this way, and I am persuaded that for certain cases it is most valuable. As yet I am by no means prepared to say the method is invariably curative, but with experience I believe its value will become very greatly enhanced.

The constitutional disturbance caused by the injection varies with the temperament of the individual. In a highly-strung man it may be so severe as to cause him to refuse further treatment, while in a phlegmatic individual who has confidence in his doctor, appropriate doses only give rise to slight headache and malaise some hours after the injection. For this reason it is a good plan to inject the vaccine in the late afternoon, so that business may not be interfered with, and discomfort deferred till bedtime, when the patient may sleep it off. Experience shows that to get any good effect from inoculation two or three points must be attended to:

(*a*) The gonococcus should be demonstrated in the urethral discharge. It is obviously of no use to inject antigonococcal vaccine if the gonococcus has died out and the discharge is perpetuated by other forms of bacteria.

(*b*) It is useful to get a patient into a good state of health before commencing the treatment. This may be accomplished by means of a holiday or the exhibition of iron.

(*c*) It is most important that the dosage be carried out systematically. I find that the best results are obtained by commencing with small doses—forty or fifty millions of sterile gonococci—and, as the patient becomes accustomed to the treatment, rapidly to increase the inoculation. This may be done in two ways—either the number of organisms may be increased or the interval between the doses may be shortened. A judicious combination of the two gives the best results.

I will briefly relate 3 cases in illustration:

CASE I.

In October, 1905, a gentleman, aged 27, contracted syphilis, and in July, 1906, a urethral discharge was present in which I failed to find gonococci. In August, 1907, the patient again contracted urethritis, and the gonococcus was present in large numbers. This attack ran a prolonged course. Time after time the discharge was reduced to a minimum, but the slightest departure from strict teetotalism was immediately followed by relapse, and gonococci could always be demonstrated in the discharge. He was under continuous treatment during January and February, 1908, yet on March 11th gonococci were plentiful. He then submitted to injection of vaccine, and had five injections, the last being on May 12th. The discharge diminished from the first, diplococci disappeared, and the patient was cured. Quite recently I met this gentleman, and he says that he dines, goes to smoking concerts, and other amusements, places no restriction on himself, yet remains quite well.

CASE II.

Last September a gentleman sought my advice on account of what he believed to be a long-standing urethral discharge. In 1904 he suffered from gonorrhoea and was under treatment for some months. He believes he has never been quite well since. His account now is that ten days after exposure to infection he noticed a small amount of discharge first thing in the morning. He cured this himself, but after drinking a few glasses of beer the discharge returned. He received the usual treatment till October 7th, when, as I was able to see diplococci in the discharge, I suggested antigonococcal injection, and gave him at once 0.5 c.cm. of the Lister Institute vaccine. On October 20th I injected 1 c.cm. and no further discharge was observed. As a precaution the 1 c.cm. was repeated on November 3rd and 16th. On December 3rd I examined the patient and could find nothing wrong, and a week or two ago he wrote to say he was quite well and leading his ordinary life.

CASE III.

This case illustrates the advantage of rapidly increasing the dose. Last April a gentleman, 30 years of age, consulted me for gonorrhoea. He had had several attacks, and probably had not been quite free for some years. He was under treatment till the end of July, when he was advised to take a holiday. In October he returned to me and said that, although he was better, he was not well; he had to refrain entirely from alcohol, or he suffered from an annoying discharge. Gonococci were recognized, and on October 7th 0.5 c.cm. antigonococcic vaccine from the Lister Institute was injected subcutaneously, on October 23rd 1 c.cm., and on October 31st 1 c.cm. These injections caused no constitutional disturbance, and the patient was better. On November 23rd he came again, saying that he had been to a dinner party, had drunk wine moderately, and the next morning had again seen some discharge. On December 7th gonococci were once more demonstrated, and as the previous injection had not caused any marked discomfort, I advised the patient to have a few injections at short intervals, and of increased dosage. Accordingly, on December 11th I injected 1 c.cm. antigonococcal vaccine, on December 17th 1.75 c.cm., and on December 21st 2 c.cm. The patient went away to spend Christmas at a seaside hotel and was snowed up, so that his holiday was passed almost entirely indoors. He placed no restriction upon himself as regards smoking, eating, or drinking, and has suffered no return of his complaint.

These cases show that in the hypodermic injection of sterile dead gonococci we possess a curative agent which in all probability will prove to be of marked service in the treatment of gonorrhoea. If this surmise proves to be correct, it is a method which deserves to come into general use, because the way it brings about a cure is the most rational with which we are acquainted. At present we have no other means of attacking the gonococcus directly. Our injections, or drugs administered internally, can only act indirectly upon the organism; but if we can produce in the juices of the body a substance which is a poison to the gonococcus, then we may hope that the disappearance of the signs of the disease thus brought about means that the gonococci are killed, and not merely hidden away in a quiescent state, ready to light up again when an opportunity presents itself.

The antigonococcic vaccine prepared by the Lister Institute is a convenient and reliable preparation with which to make the injections. The gonococcus is such a delicate organism, and so difficult to grow, that unless one has a laboratory in one's consulting room the attempt to manufacture a vaccine from the individual case is almost certainly foredoomed to failure.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

A PLEA FOR MORE ACTIVE TREATMENT OF ACUTE GONORRHOEA.

THE treatment of a case of gonorrhoea is surrounded with difficulties, and it can hardly be gainsaid that in this country it is only too often carried out imperfectly and attended with indifferent success.

Within the last four years I have had under my care 19 cases of acute gonorrhoea, and facilities were available for their efficient and thorough treatment under my supervision. The treatment I invariably adopted was briefly the early and repeated irrigation of the anterior portion of the penile urethra without the administration of any specific internally.

I have been in the habit of directing the patient as follows: Ten ounces of a solution of boiled water allowed to cool to a comfortable temperature, 99 to 100° F., to which has been added a grain of potassium permanganate, is allowed to flow into the urethra from a douche can, to which is connected a length of tubing and a suitable glass or bone nozzle. The patient is directed to grasp the penis between the index and middle fingers of the left hand, so as to shut off the anterior 1½ in. of the penile urethra, the douche can is raised to a height to ensure a moderate pressure of fluid and the flow started and stopped by means of a convenient clamp on the rubber tube. Failing a douche can, a strong syringe with a ring at the end of the piston might be used; a syringe of this character can be easily manipulated by the right hand. Urination is to be performed when possible prior to irrigation. These irrigations are repeated hourly or oftener (three to four times in two hours) during the day, and at night also if this can be effected without disturbance of natural rest.

The boiling has already rendered the water sterile, so that the addition of a small quantity of potassium

permanganate is for effect rather than for its therapeutic virtues. With the exception of occasional saline aperients, and other hygienic measures, no further treatment is required.

This treatment has in my hands been rewarded with invariable success, the discharge disappearing even in the severest cases within ten to seventeen days; moreover, during the period of treatment all the distressing symptoms, such as chordee, priapism, and painful micturition, are mitigated. The degree of comfort enjoyed by the patient is an encouraging contrast to the distress which usually characterizes this malady; further, no complications have arisen in the whole series of cases treated by this method.

I was led to adopt this method of treatment on the grounds: (1) That the infection is primarily confined to the very foremost part of the penile urethra. (2) That local treatment is as rational when applied to the urethra in a condition of catarrhal or suppurative inflammation as it is when applied to a purulent ophthalmia and pyorrhoea alveolaris, and similar affections of other mucous membranes. (3) The restriction of the irrigation to the anterior part of the urethra precludes the risk of infection of the healthy membranous and prostatic portions. (4) At the same time there appeared no reason to complicate a simple procedure by including the whole urethra and bladder in the operation, as advocated by some authorities. It is no exaggeration to say that such grave complications as cystitis, orchitis, epididymitis, have been excited by the dissemination of the virus in the method of vesical and urethral irrigation. (5) Despite the fact that the organisms are intracellular and may be in the deeper layer of the mucous membrane, and bearing in mind that the infection is generally a mixed one, the washing out of the débris prevents further reinfection, and the temperature of the fluid used leads to an engorgement of the neighbouring vascular area with accompanying serous exudation, and this, presumably by virtue of its opsonizing properties, reinforces the natural resistance of the tissues to bacterial infection, much in the same way as a fomentation acts on an inflamed area. (6) Internal treatment is unnecessary; the patient is saved from the usual unwholesome therapeutic agents, which so often give rise to gastric derangement and consequent lowering effects.

It may be said that the practical difficulty of carrying out this method is so great as to preclude its adoption, but in view of the many complications of this disease involving serious crippling and even loss of life. I would point out that, in the case of those patients whose circumstances allow an interruption of business, it is the duty of the medical attendant to ensure that the position of his patient is such as to enable treatment to be immediately and strictly carried out. The patient should be sent to some home spa, where nursing homes with male attendants might be provided. By so doing success is ensured and a journey to a Continental doctor, after prolonged desultory treatment, as so often happens, is obviated. In the poorer class the patient should, where possible, be induced to seek admission to the Poor-law infirmary. The absence of appropriate institutions for the treatment of venereal cases, which under the present social conditions must inevitably arise, is a deplorable fact.

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GONORRHOEAL RHEUMATISM DIAGNOSED HYSTERIA.

The following case may prove of interest to your readers. The patient, a married lady, aged 24, who had had no children, no miscarriages, and no previous illnesses, except measles when a child, consulted me on account of pain "all over the top of the head." Her profession, the stage, entails an amount of facial gesticulation, and she informed me that whenever she wrinkled her forehead or raised her eyebrows, the pain was severe. She described it at that time as being of a sharp, stabbing character, and she experienced the same pain when she was dressing her hair or putting on her hat. When the scalp was at rest it felt tender, and there were occasional twinges, and all the time "she felt it was there." She had been rigorously treated for neuralgia with no beneficial result, and had finally been informed that the condition would get better in time, that it was a form of hysteria, and that she had better try to forget it.

Upon examination the scalp was found to be distinctly tender to the touch, movement was evidently painful; there was a slight erythema and a scarcely appreciable amount of oedema or "puffiness," which the patient explained as being due to the rubbing on of liniments. The tender area seemed limited to the attachments of the occipito-frontalis. The supraorbital nerve was not tender. There was no discharge from either ear, and the mouth was in an extremely good condition, oral sepsis being put completely out of court. Examination of eye, nose, and throat failed to reveal any condition of disease. She informed me that she had not suffered from sore throat or rashes of any kind—that she had no trouble with her digestion, but that her scalp had been scurfy for some time. All the excretory functions, as far as I could elicit, were normal. Upon explaining to her the importance of a thorough examination, she consented to my finding out whether any vaginal discharge existed or not. I found a muco-purulent discharge present in small quantity in the vagina, and a drop of muco-pus could be squeezed from the urethra. I obtained films, and the gonococcus was found to be present. I diagnosed gonorrhoeal rheumatism affecting the aponeurosis of the occipito frontalis. I instructed her to empty the lower bowel by means of a saline aperient before coming to see me, and I then injected 25 c.cm. polyvalent serum per rectum, allowing her to rest for half an hour in a recumbent position before proceeding home. I ordered a vaginal douche of 1 in 4,000 zinc permanganate, and gave her grains v of guaiacol carbonate three times a day. The usual directions as to diet and aperients were given. I had intended to repeat the injection of serum, but found this to be unnecessary as the patient made steady progress towards a complete recovery.

E. Urquhart Bartholomew, M.R.C.S.,
London, W.C. L.R.C.P., etc.

THE EXTIRPATION OF CANCER WITH FORMALIN.

I agree that the extirpation of cancer with formalin is not a new treatment, and your article reminded me of a case in which I employed it years ago, shortly after the use of the drug became general; and though I did not think there was anything wonderful about it, perhaps a short report may be of interest.

An elderly woman came to me with a small scirrhous tumour of the right breast. The conditions were very favourable for excision, and I urged immediate operation. She went away to think over it, and I did not see her again for about nine months, when she was brought into hospital suffering from profuse haemorrhage proceeding from a sloughing ulcer at the apex of a huge mass of cancer. To check the haemorrhage I plugged the deep pit with wool, and, in the hope of abating the stench, I thought I would try the effect of formalin. I think I used a solution of formalin and water, equal parts. I left the plug in for some days, and, on removing it, I was surprised to find a considerable area quite dry, and of the consistence of cheese, and this I cut away until red showed in the black mass, and I then plugged it again. I continued this treatment for some ten weeks, during which the patient suffered no pain; and, when I judged the whole of the tumour had been destroyed, I left the sloughs to separate, which they did in due course, leaving a clean granulating surface free from any trace of disease. Unfortunately, the patient died not long after of cancerous deposits in various internal organs. I made one mistake. I carried the caustic action of the formalin too deep over the centre of the tumour, with the result that three or four of the ribs were exposed, and, when the sloughs separated, the patient had the unique experience of being able to see under two of her ribs. There were some enlarged glands in the axilla, but under the formalin treatment they shrunk until they could not be felt.

It appeared to me that the difficulties of limiting the destructive action of the formalin were too great to make it generally applicable, and I never repeated the experiment.

Cootehill, Ireland. T. H. Moorhead.

Reports
ON
MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

CASHEL UNION HOSPITAL.

OBSCURE SPINAL PARALYSIS.

(Under the care of Dr. LAFFAN.)

R. G., steward, aged 51, was admitted on August 29th, 1908.

History.

He stated that backache commenced some time in November, 1907; he described it as straggling and worse at night in bed. It continued until January 21st, 1908, when it got very much worse. In June pain in both hypochondria was added to the back pain, but did not trouble him while he lay still. He described his sensations as if a rope were tied around him tight at times. There was no connexion between this cincture feeling and the pain, as one would come at times without the other. He had been exposed to much cold and wet. He had pneumonia of the left lung about fifteen years ago, and about twenty-five years ago sustained an injury to the elbow-joint, from which some splinters of bone seem to have come away. It was not operated on. The joint remained stiff. He was a temperate man and did not smoke. The back pain was not confined to any particular spot, but seemed to be diffused over the whole back from the ribs down to the ilium. On July 1st, 1908, he complained of a sleepy feeling in the right toes, and about a week afterwards in the left toes. This sleepy feeling continued to ascend until it involved the whole of both lower extremities with the adjacent portions of the abdomen and pelvis. He went to a brother's house on July 24th, and soon after that began to notice that his limbs were not as strong as before.

State on Admission and Course.

He was anaemic, thin, and unhealthy. The facial muscles were unaffected. He complained of extreme backache, and it could be seen readily that he was semi-paralysed in the lower limbs. The weakness of these gradually increased. On September 7th he got retention of urine, and found that after two days in bed he could scarcely put his limbs under him at all. He remained in this condition until September 21st, when severe hypochondriac pain set in, followed by entire loss of motor power. During the progress of the case some slight tremors occurred in the muscles once or twice. He never had headache or ocular symptoms. The lower limbs looked somewhat wasted. The pupils were medium in size and sensitive to light. Speech was normal. The retention of urine continued from September 21st. There was no evidence of a paralysed sphincter ani. Enemata, however, came readily away. His intellect was unaffected. Respiration was 24, pulse 108 to 112, temperature 97.6°. The heart and kidneys were sound. Electric reaction was natural, and there was no ankle clonus. The patellar reflex was normal, as was also tactile sensation. I will not weary your readers by details of treatment, which presented nothing new. He gradually sank and died on September 27th, the mode of death being by way of exhaustion.

The diagnosis in this case must remain obscure in the absence of a *post-mortem* examination. Probably the disease was a malignant tumour pressing on the cord. I would here observe that there is an enormous loss to the public and to science occasioned by popular prejudices against *post-mortem* examinations. I believe such prejudices, however, are not so great or so widespread as they were, and that in consequence it should not be impossible to secure compulsory examinations in all institutions where the inmates receive gratuitous treatment.

THE General Association of Medical Practitioners of Norway, which was founded in 1836, will hold its thirteenth congress at Bergen in August next.

Reports of Societies.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF STATE MEDICINE.

Friday, February 5th, 1909.

W. R. DAWSON, M.D., President, in the Chair.

Irish Recommendations of the Royal Commission on the Feeble-minded.

THE PRESIDENT read a paper entitled "The Irish Recommendations of the Royal Commission on the Care and Control of the Feeble-minded," in which he gave a short account of the chief recommendations.

Mr. LOUIS KELLY, B.L., said he was astonished that such a revolutionary report was so little known and the extent of its recommendations so little appreciated by those who professed to take an interest in the subject. In criticizing the recommendations, he wished to point out that while past and present inspectors of lunatics were exclusively medical men, there was no provision in the law as it stood that these posts should be compulsorily assigned to medical men. In England there were legal inspectors who had done good work, and he objected to the exclusiveness of the recommendations in that respect. The recommendations also proposed to make permanent the present local committees who controlled the asylums in the country. He had no great veneration for a scheme by which so much control and authority was vested in men who had absolutely no training or qualification for the duties imposed on them. Such committees had done and were doing things which no person who was interested in the well-being of the insane could justify. Their very irresponsibility might be taken as an excuse for acts of which he would give some examples collected at random, and in which violence to patients under circumstances which gave no justification for it, and committed by men who were notorious for assault even outside the asylum, was condoned. The President had indicated another weakness in the scheme in regard to the course to be adopted when money was sought to be obtained for building purposes. He objected to the proposed multiplicity of control, which only perpetuated one of the fatal defects of the present lunacy system of administration, in which there were nine bodies which had a certain amount of power and authority. He could not, however, conceal from himself that the report was a marked advance, and its generosity towards Ireland was one of its outstanding characteristics. In the special grant for the provision of necessary accommodation it went further than it did in respect of England or Wales. He hoped the recommendations of the report would become more generally known, and to some extent carried out, and that it would not be pigeon-holed, like the recommendations of the Viceregal Commission on Poor Law in 1891, and others, which proposed the most salutary changes.

Dr. LEEPER said the subject of the care of the feeble-minded and the degenerates of the country was inseparable from Poor Law reform, and the latter would have to come first. In the workhouses, as at present constituted, all the factors that made for degeneracy in the population were being run by State aid. If they reformed the workhouses they would prevent the propagation of degenerates and control the feeble-minded. He was old enough to have given written and verbal evidence before the committee appointed by the Lord Lieutenant of Ireland, the Lunacy Administration, whose report was issued in 1891. The recommendations of that committee were never given effect to, because they ignored the legal difficulties of the subject, and nothing had been done since to alter or amend the Irish Lunacy Laws. The chief difficulty would be in controlling the feeble-minded, who numbered twice as many as the idiots and imbeciles together, and who were capable of doing much more injury to the race than the latter. It would be regrettable if they had to depend for the control of the demented and degenerate on the whim of justices of the peace, one of whom had refused to commit an obvious lunatic who the next day killed a farmer.

Dr. MCVITTIE said the question of teachers for the feeble-minded was a central point. He was satisfied that there were many children in whom intelligence developed late,

and that such children, if suitably handled by properly trained teachers, might become useful members of the community. Most of them were ruined in school. Nine out of ten of the teachers under the National Board had nearly all the qualities required to make successful teachers destroyed before they were launched. Their nervous systems were ruined, and their capacity to deal with neurotic or delicate children eradicated. He had examined many such teachers. They were excitable and neurotic, and had been worn and worried by studying a great deal of rubbish for examinations. They would be getting something done if they pressed on the Government the importance of selecting teachers with greater care as regards their physical training. The propagation of degenerates extended beyond the workhouses. There were children in large towns who were reared in unfortunate circumstances as regards health, and if they were to be sent to schools with long hours he was afraid they must have an ever-increasing ratio of feeble-minded people.

Miss Buchanan, P.L.G., said that the Viceregal Report, if carried out, would do much to reform the present shocking state of the workhouses in Ireland, and the recommendations of the Royal Commission would deal with the feeble-minded. The Poor Law dealt with destitution, but the feeble-minded and defective need not be destitute in order to be a source of injury to the community. The public did not know that there was only the Stewart Institution to which an imbecile child could be sent, and there were cases constantly coming before her board of guardians in which people not absolutely destitute begged that an imbecile child should be sent to the institution. But because the Stewart Institution had come to be regarded by Catholics as an unsuitable place for their children, such children could not be sent anywhere but to the wards of a workhouse. Even a child sent to an English institution had been brought back because it was found that she was of Catholic parentage. There was no place for sane epileptics except the workhouses. The whole matter called loudly for legislation. The recommendations of Royal Commissions were important, but they were of no use if they were pigeonholed.

Dr. Colles said the legal difficulty was illustrated in the recommendation, that the statutory committee of a council, if it did not like the guardianship of a child, could constitute itself the guardian of the child. That had struck the Commissioners as strong, and they provided an appeal to a court of summary jurisdiction, and if any one was dissatisfied with that they could go to the judge of assize. He suggested to the Commission that a better plan would be to vest in the county court judge the power of appointing a guardian, not only of a child, but of a feeble-minded adult, and power to define the powers which the guardian should exercise over his ward. The Commissioners seemed to be inspired by the idea that if they could get a designation that would not hurt people's feelings, opposition would be disarmed, but he thought the associations of the term "mentally defective" would ultimately become as objectionable as the terms "lunatic" and "insanity," which were not originally opprobrious.

The President was of opinion that the ideal method of dealing with the feeble-minded and every other class of mentally defective would be to make the whole thing a national service like the Army Medical Service. He thought, however, it would now be impossible to get rid of the control of the county councils, and that the recommendations provided for their proper subordination to the central authority had the power to stop the grant if everything was not satisfactorily carried out. The number of defectives in workhouses was very large, and the treatment of their mental condition was about as bad as it could be. Many inmates of prisons were drawn from the feeble-minded; almost always they became alcoholic when thrown into criminal associations, and speedily went from bad to worse. The average of previous convictions for Dublin defectives—who constituted 11 per cent. of the inmates of the prisons—was nearly 18. Such facts showed the necessity for interference, and one of the advantages to be derived from any far-reaching system of control would be the placing under detention of women during the child-bearing period, which would diminish and probably extinguish the supply of defectives.

UNITED SERVICES MEDICAL SOCIETY.

Wednesday, December 9th, 1908.

Surgeon-General Sir Alfred Keogh, K.C.B., D.G., A.M.S., in the Chair.

Use and Abuse of Alcohol.

Fleet Surgeon Andrews read a paper on recent research work on the use and abuse of alcohol. He pointed out that the drink problem was almost coeval with the history of man, and that so far the results obtained by temperance legislation were disappointing. Owing to the unequal powers of resistance possessed by different individuals it was impossible to determine definitely the amount of alcohol which could be taken without harm. At the same time, the steady decrease in the amount of alcohol taken per head per annum pointed to a steady spread of temperance. He pointed out that alcoholism, as the uncontrollable desire to drink to excess, was generally acquired, though sometimes hereditary, and in the former connexion he pointed out the influence of solid customs. Writers were by no means unanimous as to the harmfulness of alcohol; while Starke, amongst others, had pointed out the evils due to the abuse of tea and coffee and the beneficial effects of alcohol as an antidote to theine and caffeine. With regard to the action of alcohol considered as a food, Fleet Surgeon Andrews pointed out that it could only be looked on as such in a strictly limited sense, owing to the impossibility of storing it in the body. Dr. Rivers, however, had stated that alcohol increased muscular work when administered to a person in a state of fatigue, which was somewhat similar in its action to the condition produced by mental fatigue. The vasomotor changes effected by alcohol and the benefits resulting therefrom were discussed, and Bianchi's investigations into the action of alcohol on the heart and circulation were mentioned, as also the effect of alcohol on the blood pressure. The affect of alcohol on bodily organisms was touched on. After some further remarks on alcohol and its connexion with cirrhosis, and in connexion with its effect on the powers of resistance to general infection, Fleet Surgeon Andrews concluded that alcoholic drinks in general and malt liquors in particular were to a certain though limited extent foods; that the effect of alcohol on the individual depended on the nature of the life led, whether sedentary or otherwise, and whether indoor or open air. Alcohol should be looked on as unfavourable to pregnant women and children. It was favourable to muscular work in small amounts, especially when no great mental effort was involved.

Lieutenant-Colonel Davies said the total abstainers asserted that it was a poison as to which there could be no doubt; they also denied that it was a food. Food was a substance which could produce heat and energy without deleterious effect. It was not correct to deny that alcohol was a food, although, of course, it did not form tissue. As to the use of alcohol in the army under the conditions of service, they had to consider the conditions of disease, forced exertion, and the special fatigues and exposures of war. As to climate, there was ample evidence from the experience of arctic voyagers and alpine guides and climbers in regard to cold, and from Indian experience as to heat, that alcohol was injurious; as to exertion, the evidence was equally strong.

Sir Victor Horsley said they had no right to call a substance a food which could not be advantageously utilized in the body. With regard to its being considered a food for the production of work, no one with any knowledge of military experiences would accept any results on the use of alcohol as a food likely to produce muscular energy. The death-rate among moderate drinkers was higher than among abstainers; the incidence of sickness rate was higher than among total abstainers. Under these circumstances he thought they ought to teach that it was a higher national duty to adopt total abstinence than indulge in so-called moderate drinking.

Dr. E. I. Spriggs said it was striking to notice that whilst methyl, ethyl, and propyl alcohols and others all belonged to the same series and were classed as depressants, no attempts were made to show the beneficial effects of any other members of the group except ordinary alcohol. Although tea and coffee were no doubt frequently abused, he did not think that any one whose work

had taken him among the lower classes of their great towns could pretend for a moment that the harm done by their excessive use was in any way comparable to that done by alcohol.

Sir HAVELOCK CHARLES said contrary opinions were advocated. The drink problem, truly, had been coeval with the history of mankind, and during the stress and strain of the process they termed "civilization," man had sought out many inventions, some helpful, and not a few harmful, according to the use made of them. Temperance legislation had been decried, but some endeavour should be made to direct the drink traffic in the road least harmful to the nation.

Fleet Surgeon COLLINGWOOD said that alcoholism was responsible for the diminishing birth-rate; but pointed out that doubtless there were many factors producing such a result.

Dr. COLLINSON said that as to whether alcohol acted as a food or not, he certainly thought that those who did not take drink, or rather were total abstainers, were very much larger eaters than those who partook of alcohol. It would be found that where tea and coffee were taken in excess, instead of alcohol, there was a liability to a certain amount of nervous breakdown.

Sir ALFRED KEOGH thanked Fleet Surgeon Andrews for his very excellent paper. He also said he was sure the thanks of the society were due to Sir Victor Horsley for coming to the meeting. The discussion was a very important one both to the army and navy. He was much struck by the manner Sir Victor Horsley in his speech placed before the meeting the question of alcohol and their relation to the public.

MEDICAL SOCIETY OF LONDON.

Monday, February 22nd, 1909.

CHARLES BARRETT LOCKWOOD, F.R.C.S., President, in the Chair.

Pernicious Anaemia.

MR. L. S. DUDGEON emphasized the fact that the blood in all the cases of pernicious anaemia which were to be referred to in his communication gave a typical blood picture—namely, a diminution of the red cells to about 1,000,000 per c.cm., a high colour index, various degenerative changes in the red cells, great diminution or absence of rouleaux formation, leucopenia, a relative lymphocytosis, and the presence of nucleated red blood corpuscles—megaloblasts and normoblasts. There was no clinical evidence of any disease apart from pernicious anaemia in any of those cases, and in those instances where an autopsy was performed no cause was found for the severe anaemia. In 9 out of the 11 cases the serum presented a yellowish-green coloration which was quite distinctive. There was no reaction for bile pigment and it failed to give any spectrum. In the remaining cases that coloration of the serum was obscured by the presence of bile pigment. In his experience, apart from pernicious anaemia the reaction did not occur, even in 3 cases where the blood picture was identical with that disease. It had been suggested that anaemia was dependent upon the presence in the serum of a substance or substances which allowed the red cells to be taken up by the phagocytes in the blood. From the observations conducted in the present research there was nothing to support that view when the immune serum and immune red cells were incubated in the presence of normal leucocytes. With regard to pernicious anaemia, however, it was shown, as in the case of the haemolysins and haemoagglutinins, that phagocytosis of the immune red cells by normal human leucocytes occurred in the presence of normal serum. Those observations on pernicious anaemia, and similarly in certain other diseases, lent great support to the view that the red cell itself must be reckoned with in observations on immunity. In conclusion, Mr. Dudgeon pointed out that although it was impossible up to the present time to demonstrate many of those most important points concerning the blood immunity of pernicious anaemia, yet it was known that phagocytosis of red blood corpuscles mainly by endothelial cells in the various tissues in that disease, as also haemolysis, was recognized; but how far these changes were directly related to the terminal stages in the disease, and how far to its actual source, remained to be seen. He did not consider that there was any evidence to show that autoinfection by streptococci and the resulting autointoxication was in any way related to the pathology of the disease.

Dr. H. S. FRENCH read a paper on some clinical aspects of pernicious anaemia. In his opinion, slight evening pyrexia was seldom absent in patients affected with pernicious anaemia who were decidedly ill. Pigmentation within the mouth of precisely similar character to that seen in Addison's disease might occur in pernicious anaemia cases treated with arsenic; the spleen was to be felt in about one-third of the cases, and it was really enlarged; nerve symptoms were not at all uncommon in pernicious anaemia; the colour index, though typically higher than 1 when an advanced stage of the disease had been reached, was not always nor continually high, especially during a period of improvement in the patient's condition, when it might be actually low; and pernicious anaemia, as they now knew it, was very possibly only a late and almost incurable stage of a disease which, it was to be hoped, would some day be recognizable early enough to be cured.

ULSTER MEDICAL SOCIETY.—At a meeting held on February 18th, Professor SINCLAIR in the chair, Dr. MAGUIRE read notes of and showed a case of *Acromegaly* in a woman; there was no diminution in the field of vision and no glycosuria, but although the menopause had occurred three years before, the breasts were producing a plentiful supply of mik. Captain STONEY-ARCHER, R.A.M.C., showed a case where the *Clavicle* had been *twice fractured* with resulting muscular paralysis and anaesthesia of the thumb, side of arm, and hand. Captain Archer had cut down on the part, elevated the depressed bone, inserted an ivory plug, and wire sutured the ends. Anaesthesia rapidly disappeared, and full strength returned; but latterly some pain had been complained of, possibly due to adhesions or callus. Captain Archer also showed a case of *Irritable heart* in a soldier who joined in a route march, and persevered to the end immediately after a post-operation three months' rest. The heart at times was very irregular, at times regular, running up to 160 per minute, and, as shown by sphygmogram, dropping one to three beats, followed by a very forcible upstroke, and further delay. Several members spoke on the case. Dr. CALWELL introduced a discussion on *Ulcer of the stomach*, and the points mentioned were the rise in the curve of age incidence in the female during adolescence, which accounted for the preponderance in the female sex that did not appear from 25 years of age onward, the site of ulcer being nearly limited to those parts which were most constantly bathed in gastric juice during the three ordinary positions of the body. The protection from self-digestion of the mucous membrane was a function of the stomach just as the peristalsis and the opening and closing of the orifice, the secretion of resorcin, pepsin, and hydrochloric acid, and the absorption of fluid and salts; and as these functions were all perverted, even annulled, by various conditions, so it was reasonable to surmise that the function of self-protection might be perverted or annulled by similar conditions. The frequency with which cases of ulcer were associated with migraine, nervous influence, infections, so that corresponding types of ulcer might be formed, lent support to this view. Some remarks on diagnosis and treatment completed the paper. Professor LINDSAY and Dr. DEMPSEY also spoke, and the discussion was adjourned till Thursday, March 4th.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.—At a meeting held on February 5th, Dr. WALKER DOWNIE, President, in the chair, Mr. JAS. MACLEAN showed a case of a very severe and protracted *Cerebro-spinal meningitis*, with complete recovery, in a female child of 4½ years. The onset was sudden, and the temperature was very variable, frequently dropping from 103° F. to normal in a very short time and as quickly rising again. After seven months' acute illness the temperature fell to subnormal, and did not again become febrile. Meningeal symptoms gradually passed off, and by the eleventh month she was well, but naturally very weak and emaciated. Recovery appeared to have been in great measure due to the large quantities of nourishment she was able to take. A striking feature in the case

was the exudation of a sticky serous fluid from the back of the neck. Dr. KERR LOVE described a case of *Perisinus abscess*, with mural thrombus, in the sinus, basal meningitis, and tuberculous tumours in the pons, cerebellum, and cerebrum. He considered there was a danger of the aurist too often considering tuberculous ear disease to be primary or secondary only to disease of the temporal bone, whereas many were hopeless cases of general infection. Such theories led to aggressive surgery, and perhaps to the opening of the cranial cavity in hopeless cases. Taking the view that the affection in the temporal bone was carried from a distance by the blood stream, the primary lesion being in the thorax or abdomen, more conservative treatment was called for, and one would be slow to open the cranial cavity unless localizing symptoms of a curable condition declared themselves. Dr. KENNEDY showed the pathological specimens. Dr. HENRY RUTHERFURD showed a girl, aged 8, the subject of *Osseous ankylosis of the jaw after otitis*. The condyle and neck were excised and she could now open the mouth well, but the teeth, especially the incisors, were not accurately apposed. He also discussed some cases of contusion injuries of the abdomen, illustrating how conflicting symptoms might be. He thought that in cases of doubt it was much better to operate. A specimen of *Rupture of the colon* by bursting (*éclatement*) was also shown.

ABERDEEN MEDICO-CHIRURGICAL SOCIETY.—At a meeting held on January 21st, Dr. RENNET, President, in the chair, a discussion on *Anaesthesia* was introduced by Professors CASH and MACWILLIAM and Dr. DALGANO, Senior Anaesthetist to the Royal Infirmary. Professor Cash stated that chloroform was intrinsically toxic in its effect, that primary heart failure might occur, though usually respiration was first affected. There was a fall in the blood pressure with chloroform before the reflexes were gone, which was not the case with ether. Chloroform reduced the oxygen-carrying power of the blood, and narrowed the coronary vessels; ether dilated these. In chloroform anaesthesia there was a narrow margin between anaesthesia and injury to the organism. The heart toxicity of chloroform was many times greater than that of ether. In imperfect anaesthesia there was reflex danger with chloroform, not with ether. Any danger with ether was readily removed by careful administration and proper temperature, while no amount of care would entirely avert danger with chloroform in certain cases. In concluding, he expressed the opinion that unless there was strong reason to the contrary, ether should be chosen as the routine anaesthetic. Professor MacWilliam confirmed certain of the above opinions, and referred to the microscopic changes which took place in the brain cells after chloroform, the body of the cell becoming attenuated, though they showed great and rapid powers of recovery even after deep and prolonged anaesthesia. Chloroform relaxed the muscles of the heart and arteries, and while heart, respiration, and arteries were all acted on, the heart was the chief factor in danger. Too strong a vapour exerted an inhibitory action through the vagus which might kill immediately. The important point was not the percentage of chloroform in the air taken into the chest, but the steady intake into the circulation, which varied according to the rapidity and depth of breathing. In his opinion, chloroform should not be given as a routine anaesthetic without considering whether ether or local anaesthesia might not meet the case. Dr. DALGARNO dealt with the practical application and administration of anaesthetics, pointing out the necessity of careful preliminary examination and preparation of patient, and detailed the changes in technique necessary for the anaesthetizing of alcoholic, timorous, fat patients, etc. Previous starvation and purgation might be overdone. The preliminary administration of drugs—strychnine, saline infusion, morphine and atropine, sparteine sulphate, etc.—were dealt with. Various forms of apparatus were exhibited and discussed, and various anaesthetic sequences were considered, and he gave statistics from the records of the Aberdeen Royal Infirmary for three years, during which time 4 deaths occurred out of some 6,000 cases, all of which took place in the early stage of administration of chloroform and in bad cases, 2 of them emergency operations. Mr. SCOTT RIDDELL then dealt in a very complete manner with spinal analgesia, sketching the history of this method, and detailing the advantages and disadvantages which it had. The discussion was adjourned till the next meeting.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.—At a meeting held on February 5th, Dr. W. H. CHEETHAM in the chair, Dr. MACGREGOR YOUNG opened a discussion on *Anaesthetics*. In comparing the relative safety of ether to chloroform he said that the British Medical Association Committee had found that chloroform was seven times more dangerous to life than ether; but, in his opinion, if its finding had been that chloroform was seventy times more dangerous, he would still have thought the proportion understated. Ether as an anaesthetic vapour administered with reasonable care was not dangerous at all, whereas chloroform even in skilled hands might be attended by fatal results, and he did not think any apparatus had brought its administration within the limits of absolute safety. With regard to the after-effects with which ether was credited in the way of bronchitis, bronchopneumonia, etc., this was so much a question of personal experience as to make general conclusions of small value. For his part, the more he gave of ether the less was he inclined to blame the anaesthetic and the more its faulty administration, the absence of warmth during the operation, in the theatre, the corridor, the ward or bedroom, and the after-care of the patient in the way of inhalation, posture, etc. As regards ethyl chloride, the eccentricities and even fatalities of this anaesthetic might be due to a failure to appreciate the enormous difference that the warmth or coldness of the apparatus made in so volatile a drug. The status lymphaticus was discussed; acid intoxication as a cause of death after chloroform was not always recognized. He had seen one death lately from this cause in an adult. The patient had had anorexia for weeks, and was starved in consequence, from an unrecognized tuberculous peritonitis. The strangulation of a ventral hernia necessitated urgent operation. Chloroform was given, with the result stated. He had tested the urine in 40 cases for acetone, and found it in 1 before and 5 after operation. In none were there any untoward effects. Ether was the anaesthetic given. Mr. PRIDGIN TEALE supported Dr. Macgregor Young's conclusions as to the safety of ether compared with chloroform, and drew attention to the increasing employment of the former anaesthetic. He also outlined the history of the introduction of ether as an anaesthetic. Dr. J. B. HELLIER said he thought that bronchitis and pulmonary complications generally were much more frequent after the administration of ether than after chloroform had been given, and that deaths from these causes were not infrequent. In estimating the safety of an anaesthetic, one had therefore to take into consideration not only deaths during the administration, but occurring later owing to its secondary effects. Mr. H. LITTLEWOOD showed (1) a *Meckel's diverticulum* removed from the hernial sac of a child 3 months old, and (2) a *Stone removed from a horse-shoe kidney*. Dr. A. G. BARRS showed a case of *Gonorrhoeal arthritis treated with vaccine*. Dr. ALEX. D. SHARPE showed a case of *Syphilitic affection of the nose and pharynx*, and advanced *Tuberculous disease of the larynx*. Mr. W. THOMPSON showed a *Large intestine showing two malignant growths*, one of which perforated after ileo-sigmoidostomy. Mr. J. F. DOBSON showed an *Omental band causing attacks of intestinal obstruction* simulating appendicitis. Dr. WARDROP GRIFFITH showed a case of *Mitral stenosis with phthisis*. Cases and specimens were also shown by Dr. D. SANDERSON LONG, Mr. J. BASIL HALL, Dr. E. O. CROFT, Mr. B. G. A. MOYNIHAN, Dr. J. B. HELLIER, Dr. C. OLDFIELD and Mr. SECKER WALKER.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—At a meeting held on February 17th, Dr. J. MACKIE in the chair, Dr. A. STANLEY GREEN (Lincoln) read a short paper on *The uses of Bier's hyperaemia in general practice*. This was Nature's method of bringing up reinforcements and was valuable both for the relief of pain and also in septic cases the need for repeated fomentations was done away with, while much smaller incisions would suffice where these were necessary. Passive or venous hyperaemia was produced by suction glasses or rubber bandages as shown, and instances were given of the value of such treatment

in septic wounds of the limbs and fingers, of the scalp' facial erysipelas, chronic ulcer of the leg, orchitis' gonorrhoeal and tuberculous arthritis, mumps, mastitis, axillary abscess, boils, and carbuncle. Where possible it was also advisable to prepare a vaccine from the patient's own pus, and utilize this in the treatment. The paper was discussed by the CHAIRMAN, Drs. W. T. ROWE, R. B. PURVES (Lincoln), W. HUNTER, and R. WOOD (Ilkeston), and Dr. GREEN replied. Dr. W. T. ROWE read a short paper on *Indigestion in children beyond the age of infancy*, in which he traced the various symptoms to which indigestion might give rise in children, and after alluding to the marked idiosyncrasy exhibited by some children to certain articles such as eggs or porridge, criticized the overuse of certain foods, such as bread and butter, potato, porridge, brown bread, fruit, salt meat, and root vegetables. He also made suggestions as to treatment and alterations in a faulty diet. The paper was discussed by the CHAIRMAN, Drs. F. H. JACOB, A. S. GREEN (Lincoln), R. M. HAMILTON (Annesley), J. S. BOLTON, A. FULTON, W. HUNTER, A. J. SHARP, and S. E. GILL, and Dr. W. T. ROWE replied. Dr. C. H. ALLEN showed a case of *Marked hypertrophy of the penis*, apparently due to lymphatic obstruction, in a collier aged 44, who had received a severe blow in the groin six months previously. The condition had been materially relieved by circumcision, but at one time the penis had measured 8 in. in length and 8 in. in circumference. Dr. THOMSON HENDERSON showed sections of an *Eye in which a magnetic fragment of steel had been embedded* more than four years, also other specimens showing pigmented and unpigmented sarcoma of the choroid. Dr. R. B. PURVES (Lincoln) showed a *Fibro-sarcomatous tumour*, weighing 6½ lb., in the testicle, removed from a man aged 70, two years ago without recurrence; an *Appendix* attached by two shroud-like adhesions to the posterior wall of the bladder in a man, and prior to removal causing micturition at regular and definite intervals; also *Fallopian tubes, the seat of chronic inflammation*, in a girl aged 20, and removed on account of fistulous pyuria occurring through the posterior wall of the bladder, and leaving a urinary fistula after operation.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.—A clinical meeting was held at the Medical Society's Rooms on Thursday, February 11th, Mr. E. NETTLESHIP in the chair. Mr. BISHOP HARMAN showed *Models* on an economical plan for the *Diaphragm test* and a *Substitute for smoking* for the use of patients suffering from tobacco amblyopia who felt the loss of their tobacco. The latter consisted of quassia made up in the form of chewing-gum, and the idea was suggested to him by the remark of a night watchman with tobacco amblyopia, who had to sit by a fire all night and did not know how to employ his time if he did not smoke. Dr. A. LEVY showed a case of *Obstruction of the cilio-retinal artery*. The vessels were sclerosed, and that was the only evidence of arterial disease, the viscera being sound. Mr. CUNNINGHAM showed a case of *Aniridia* and gave the family history of the condition. Mr. NETTLESHIP brought three drawings illustrating *Haemorrhages, believed to be choroidal*, following a blow on the eyebrow; also choroiditis behind the retinal veins. Mr. HANCOCK showed a case of *Pituitary neoplasm with ocular symptoms* in a child. The physique of the child seemed to suggest that it was an early case of acromegaly, and skiagrams showed an abnormal appearance in the pituitary region. Mr. MACNAB called his attention to a paper on the subject by Uhthoft at the Heidelberg Congress. Dr. MACKENZIE DAVIDSON exhibited the skiagrams of the case, showing the small abnormal opacity in the region of the pituitary body in front of the sella turcica. He said he had never seen an appearance of that nature before. Mr. LESLIE PATON said he had seen a case of a similar nature at intervals in the last six years. The boy developed intense optic atrophy in both eyes, evidently due to pressure on the chiasma, and the sequel was that he was now in an asylum. Mr. MACNAB gave a synopsis of the paper by Uhthoft to which allusion had been made. Mr. FISHER questioned whether the skiagram enabled one to say that the bone cavity containing the sella turcica was enlarged. Mr. E. W. BREWERTON showed a case of *Cyst of the iris* which at first had the appearance of sarcoma. Mr. RAYNER D. BATTEN showed two cases of *Hereditary retinitis*. He believed it was a retinitis with secondary atrophy rather than an actual atrophy.

HARVEIAN SOCIETY OF LONDON.—At a clinical meeting held at St. Mary's Hospital on January 28th, Dr. WILLIAM HILL demonstrated *Direct vision laryngoscopy* and *Tracheo-bronchoscopy*, using Brüning's or Chevalier Jackson's instruments. He showed: (1) *Growth on right vocal cord;* (2) *Pachydermia of cords;* (3) *Tuberculous growths;* (4) *Tuberculous laryngitis*, where the ulcerations had healed under daily direct vision treatment in hospital; (5) *Subacute laryngitis;* (6) *Chronic laryngitis*. He also demonstrated the *Bifurcation of the trachea*. After cocainization of the larynx a tracheoscope was passed through the vocal cords during inspiration to a distance of 3 in. After further cocainization, Brüning's extension bronchoscopic tube was passed through the tracheal tube to the bifurcation. No coughing occurred in any of these cases, showing the efficiency of Mr. Harrison's method of cocainization. Dr. Hill also showed the apparatus used in *Oesophagoscopy*, and related a case in which he had used it. He showed Chevalier Jackson's *Gastroscope*, together with the laryngeal and tracheal instruments of Kirstein and Killian, which led up to the perfected instruments of Brüning and Jackson. Mr. CECIL GRAHAM exhibited by direct laryngoscopy the condition of a *Tuberculous patient from whom an interarytenoid tuberculoma had been removed* under chloroform by the aid of Brüning's laryngoscope. Mr. FITZMAURICE-KELLY showed a case of *Endothelioma* of the tonsil with enlargement of the cervical glands, and also a case of *Osteo-arthritis* of the left metatarso-phalangeal joint associated with cystitis. Dr. WILLCOX showed a case of *Collapsed lung with secondary fibrosis* in a child. He discussed the possibility of congenital bronchiectasis and fibrosis following phthisis. Mr. LAMING EVANS showed a case of *Congenital dislocation of the left hip* of the supra-cotyloid variety in a girl of 7. There was a complete absence of lordosis. Trendelenburg's sign was present.

Reviews.

DIETETICS.

WE may congratulate Dr. G. A. SUTHERLAND on the successful accomplishment of the well-planned *System of Dietetics* which, under his editorship, has been added to the series of Oxford Medical Publications.[1] He has secured the co-operation of a distinguished body of collaborators, who have amply justified his choice. The volume opens with an introductory chapter by Sir Lauder Brunton, which contains practically all that such an introduction should include, but the student would have been helped by a short bibliography, giving references to the chief works which have influenced modern thought on this subject.

Dr. Harry Campbell is interesting and philosophical on the evolution of diet, following on the lines traced by Malthus and Darwin. He imagines the simian ancestors of mankind as living on fruits and roots, insects, vermin, birds, small reptiles, frogs, eggs and small mammals, just as some monkeys do now, and he describes the homo-simian as gradually acquiring greater facility in killing other animals for food, and hence becoming more and more carnivorous. He represents early man, when he had arrived at the stage at which he became entitled to that name, as living by hunting, mainly carnivorous in his food, and not reverting to vegetables for a considerable portion of his diet until after the development of the art of cookery; but before the possession of vessels in which the process of boiling could be adequately performed he was unable to avail himself of the great store of starch which Nature conceals under hard envelopes, and its full development was not until agriculture had multiplied enormously the supply of the most important kinds of starchy food. This process has gone on until, in our own time, the proportion of vegetable food in the diet of man is greater than

[1] *A System of Diet and Dietetics.* Edited by G. A. Sutherland, M.D., F.R.C.P. Oxford Medical Publications. London: H. Frowde (Oxford University Press), and Hodder and Stoughton. 1908. (Roy. 8vo, pp. 906. 30s.)

it has ever been since he bore that title. Dr. Campbell does not consider this a matter for congratulation. He shares the view that the excess of carbohydrate food eaten now, in what he calls, perhaps not very politely, the "age of pap," is largely the cause of the decay of teeth, especially as it is presented in a form that demands so little mastication.

Dr. E. I. Spriggs has written admirably on the physiology of digestion; in fact, too much praise cannot be given to the care he has taken to place before the reader an account of the present state of knowledge, so that while not disguising the gaps that exist, the story of the digestion and absorption of food in man is made intelligible. He might have mentioned the evidence tending to prove that the food lies in layers in the stomach, that last swallowed occupying the central position, so that it does not come at once in contact with the gastric juice, as this arrangement explains how it is salivary digestion may continue for a considerable time after food has reached the stomach, and justifies the practice of taking pudding after meat, which, without this explanation, seems to be irrational, since a quantity of carbohydrate food is introduced into a stomach when digestion is in full activity and much acid gastric juice present. The utility of Dr. Spriggs's article is greatly increased by the inclusion of the valuable tables of the composition and heat-value of different articles of food compiled from Atwater and Bryant. The arguments on both sides of the controversy respecting the protein requirements of the body are stated temperately, but scarcely do justice to Chittenden's contention that we cannot rely upon "preference" as a safe ground for dietetics; the more recent experiments made by the same observer on dogs are not given, although reference is made to those of Rosenheim and Munk, which are adverse; in fact, he hardly appreciates sufficiently Chittenden's arguments and facts as set forth in his latest book (*The Nutrition of Man*, 1907), where some of the objections raised are dealt with.

Dr. E. Cautley describes the various dietetic cures in vogue, and has hardly a good word to say for one of them. Dr. Spriggs is an advocate for the common experience of mankind as against Chittenden, but Dr. Cautley uses Chittenden against the faddists. He draws a gloomy picture of the economic effects of vegetarianism, but we doubt if he is justified in thinking that if it were pushed to its logical conclusion it would not pay to keep sheep for wool or cows for milk or fowls for eggs. Long before there was any prospect of the mutton of New Zealand and Australia being available for the food of Europe, when carcasses were boiled down for tallow, it paid to keep sheep at the Antipodes, while in India at the present day cows are kept for milk and fowls for eggs. The chapter on proprietary foods, also by Dr. Cautley, contains an instructive table giving information respecting the composition and nutritive value of most of these articles. Dr. F. D. Boyd writes on artificial feeding, a subject upon which he has already done good work.

Dr. Harry Campbell, who writes on alcohol, accepts the views of Dr. Archdall Reid that races of mankind become gradually immune to the "charm" of alcohol, and that drunkenness is a sign of recent civilization, or at least of recent access to the free use of alcoholic drinks. While not advocating total abstinence, he is justified in pointing out that large numbers of people take far too liberal a view of what they are pleased to call moderate drinking.

The subject of feeding in fevers has been entrusted to Dr. Claud Ker, who deals somewhat vaguely with the diet in enteric fever; in discussing the alleged advantages and obvious objections to the use of solid food he has left the question more open than seems prudent. It is quite true that many mild cases do well on semi-solid food, but some who have given it a trial for some years have abandoned it owing to the occurrence of accidents from time to time which were probably due to it and which might have been avoided by following a more cautious regimen.

Drs. Noel Bardswell and Chapman, in the section on diet in tuberculosis, repeat the substance of their excellent and well-known monograph on the subject. Their opinion that very high feeding often results in the arrest of the tuberculous disease should be noted. Great praise is due to these gentlemen for the pains they have taken to study the cost of diets and to show that cheapness is not inconsistent with efficiency.

The chapter on the diet of gout and rheumatism is by Dr. A. P. Luff, who advocates for the gouty the adoption of Chittenden's dietetic principles, but repudiates the notion that meat is a poison, and will have nothing to do with "purin-free" diets. He makes some common-sense remarks upon the popular prejudice against potatoes and strawberries in gout and on the insufficient consumption of fluids by women. The article on the diet of diabetes by Dr. Rose Bradford is disappointing, as it fails to say anything as to the need for making the diet rules quantitative as well as qualitative, nor does it point out that a satisfactory diabetic diet must contain a sufficient number of heat units. Considering the importance of the subject, the article is too short, as may be seen if we compare the ten pages devoted to it with the fifty allowed to the diet of tuberculosis.

Dr. Cautley has written a good article on the treatment of obesity, giving a clear account of the principal dietetic systems, but he does not mention the importance of meat as an appetite producer; however, his general principle of an all-round reduction in the diet is quite sound. We note that he gives an abstract of the article on the different proprietary remedies for obesity which was published in this JOURNAL. Diet in arteriosclerosis is dealt with by Dr. Campbell, who says all that in the present state of our knowledge can be safely affirmed respecting it, and says it very well.

The important chapter on the dietetic treatment of stomach and intestinal diseases is written by Dr. H. P. Hawkins. He describes methods of examination after test meals, but it is doubtful whether it is desirable to reduce the quantity of fluid given with an Ewald test breakfast from half a litre to half a pint as the quantity of contents obtainable is often rather scanty. He prefers an enema containing 1 oz. of dextrose dissolved in 10 to 15 oz. of normal saline solution to the ordinary nutrient enemas used for rectal feeding. He discusses the diet of hyperacidity very sensibly, and his conclusions are, we believe, in accordance with general clinical experience. He does not seem as certain as he might be that surgical interference for gastroptosis is worse than useless, but on the other hand he perhaps exaggerates the incurability of extreme cases, as we know of one case in which in 1901 the great curvature reached the pubes, yet the lady is now and has been for some years perfectly well. We cannot help regretting that Dr. Hawkins did not give such diets as he would prescribe instead of copying those of German authors, which are not always adapted to English palates or composed of articles in common use in this country. The theory that flatulence may be accounted for by exhalation of CO_2 from the veins of the stomach is, as Soupault called it, a pure hypothesis; deficient mastication, whether from defective teeth or otherwise, is by far the most common cause of this affection.

Dr. Hale White has only a limited subject to deal with in jaundice and other affections of the liver, but he has said what is necessary very well. We may refer in passing to his experience with the subcutaneous injection of oil as proving it to be a practicable means of aiding the nutrition of the body.

Dr. Sutherland writes on the dietetics of diseases of the lungs other than tuberculosis. It would not have been out of place to have mentioned the remarkable relief occasionally given by an emetic in attacks of asthma, and in the indication for alcohol in pneumonia he has not mentioned the collapse that sometimes occurs after the crisis. It would have been well to give more exact directions than that alcohol should be given "at regular intervals," and it is exceedingly doubtful whether the chronic alcoholic when suffering from pneumonia is benefited by the administration of alcohol; on the contrary, he is often intolerant of its effects, and it has to be replaced by digitalin and caffein. Dr. Hadley writes on the dietetics of heart disease, a subject upon which there is not much to be said, but what there is may be found here.

Dr. Rose Bradford deals with the diet in urinary and renal diseases on generally approved lines, but he does not mention the views of Klemperer on the importance of excluding lime and foods containing lime, while giving preference to those containing magnesium bases, in the treatment of oxaluria.

Dr. James Taylor, who discusses the diet in nervous

diseases, does not mention migraine, and, curiously enough, neither migraine nor headache appears in the index. Graves's disease is dealt with in three of the chapters—namely, in those on nervous diseases, on heart disease, and on blood diseases.

Dr. Colcott Fox, who has contributed the chapter on skin diseases, has made less of it than might have been expected. Under the heading, "Diet in Old Age," Dr. Campbell sets out what is known of the matter; while Dr. Sutherland's chapter on diet in the diseases of infants and children of necessity to some extent repeats what has been said in preceding chapters, but is sensible and sound.

The last chapter is that by Sir Patrick Manson on diet in the diseases of hot climates, a subject with which he deals briefly, but with a knowledge founded on great experience.

We have found these essays eminently readable, and in our opinion the book is one which not only deserves to be read and appreciated widely, but to be kept for reference on the shelves of every practitioner.

THE DISEASES OF AGED PERSONS.

THE old adage that a man is only as old as his vessels has always been held to be a sufficient explanation of premature degeneration of elderly folk, but a wider study of the physiological and pathological changes as age advances, such as is presented in the comprehensive treatise recently put forth by Professor RAUZIER,[2] of the Montpellier School of Medicine, opens up many interesting problems that have been somewhat neglected in the general textbooks.

That the author has devoted many years of careful investigation to his subject is proved by the introductory chapter contributed by Dr. Grasset, who incidentally criticizes the views of Metchnikoff with respect to the immortality of certain tissues, such as the cell which divides into two living cells, leaving no dead cell behind it, and maintains the thesis that every living being dies at its appointed time. Death is a natural process, but old age is a disease which can to a certain extent be retarded, and, if it were possible to safeguard the body from the wear and tear of mental and bodily ills, there is no reason why the patriarchal term of years should not be attained.

Dr. Rauzier's book is large, and has doubtless been in preparation for a long time. It is obviously the work of a physician who brings to bear upon his subject the teachings of a wide clinical experience and a close study of the writings of previous observers. The modifications of disease as occurring in the persons of patients over 60 years of age is the real text of the work, and, as a preliminary, the author examines closely into the changes which must be regarded as normal to the gradual oncoming of senility. Foremost among these are those affecting the circulatory system. Great stress is laid upon the importance of recognition of the universal affection of all the blood vessels, which has been described by Boy-Tessier as "arterio-xerosis." This is held to be a natural process, but somewhat unequally distributed. It is regarded as distinct from what is generally known as "arterio-sclerosis" in the fact that it is common to all vessels, both arterial and venous, and that it is not subject to the fatty or calcareous degeneration which constitutes atheroma. Such a process of slow hardening of vessels must of necessity influence the course of diseased conditions when they occur, and throughout the consideration of the diseases of the various systems this underlying factor has always to be reckoned with. As in development the vessels are the earliest to come to perfection and the brain the latest among vital organs, so in old age the brain may remain unaffected while the general vascular system has undergone profound change. The powers of the mind are often retained in almost pristine fullness long after the body has become enfeebled by the natural onset of decline. Gradual failure of function, whether of the muscles or of the internal organs, is the first evidence of senility. The old man can neither move about nor eat and drink with the same impunity as before, but within the limits of his powers his functions are not materially disturbed, they are only diminished.

The first part of Rauzier's book is devoted to the consideration of this normal decline, and the later parts to close examination of the diseases of the various systems and the modifications which they present when occurring in old people. In so comprehensive a treatise there must be a certain amount of overlapping, and the book as a work of reference would gain by compression, more especially in the discussion of those forms of disease which are chronic and usually prevent the attainment of old age. A good account is given of the blood changes in late life and of the conditions of the heart, which, like the blood vessels, undergoes certain changes which render it less able to resist the extra strain thrown upon it by over-exertion or by disease of other organs. The respiratory and digestive systems present many interesting modifications, and the proneness of the alimentary canal to be affected by cancer in any part of its course in the persons of the aged is fully discussed and the arguments for and against operative treatment carefully weighed by comparison of results obtained in many clinics.

Affections of the kidney are described at somewhat unnecessary length. The subject of renal insufficiency from any cause rarely attains to long life.

The diseases of the nervous system and of the skin are fully discussed, the latter being dealt with by Dr. Vedel, Professor of Dermatology at Montpellier.

So comprehensive a work on a subject which has rarely been studied collectively from the clinical point of view should be welcome to all schools of medicine. While many of the diseases of old age are apparently in their course the same as in the adult, there must always be borne in mind the structural changes incidental to advancing years, which are implied by the term "arterio-xerosis," already referred to. A gradual shrinkage of cell tissue, with an equally gradual development of connective tissue, must be assumed to be continually at work as a normal process, while the thousand and one causes for vascular degeneration in individual organs or areas may be influencing the vascular supply at the same time. Thus the state of his vessels does, indeed, influence the age of the patient and the manner in which it modifies the course of disease is well shown in Dr. Rauzier's book.

THE SOUL OF SPAIN.

A REALLY good book on a foreign country is by no means a common thing. Many people, after a hasty tour of a few weeks, during which they visit only the big cities and live at hotels, think themselves capable of writing exhaustively on the manners and customs of a people; but books of travel written in this fashion are worse than useless—they are misleading. A foreigner can know little or nothing of the character of a people with whom he has had no actual intercourse, of whose ways of thought, religion, and social life he is completely ignorant. At every turn he comes upon something which he does not understand, which, ten to one, he misunderstands and misjudges; and in this way all sorts of mistakes concerning other nations arise, and in some cases do untold harm. This has been particularly the case with regard to Spain, a land of which most Englishmen know little and understand less. This reproach cannot be justly brought against Mr. HAVELOCK ELLIS. In his charming study, *The Soul of Spain*,[3] which is not a book of travels in the ordinary sense of the word, he has striven to bring before us the real Spaniard with all his characteristics, as they are shown in Spanish art and literature, and he has been entirely successful. He has written with such insight and sympathy—one might almost say with such love—that it is impossible to read his book without understanding Spain better and realizing a little what a great nation she still is.

In the preface Mr. Havelock Ellis refers to his work as "inadequate and superficial," but there is no trace of superficiality throughout the book. He has returned to Spain again and again, studied her history, art and literature, and learnt to know her people from within, till he can look on life with the eyes of a Spaniard; and the result is a strikingly vivid portrait that few Englishmen could have drawn. Not many of our countrymen, for example, could understand the Spaniard's attitude towards religion so

[2] *Traité des Maladies des Vieillards.* [Treatise on the Diseases of Aged Persons.] By Dr. G. Rauzier, Professor of Pathology and General Therapeutics, Montpellier, with a Preface by Professor Grasset. Paris: J. B. Baillière et Fils. 1909. (Demy 8vo, pp. 705. Fr. 12.)

[3] *The Soul of Spain.* By Havelock Ellis. London: A. Constable and Co 1908. (Med. 8vo, pp. 430. 7s. 6d.)

thoroughly as the man who can write about their behaviour in church in the following terms:

> We realize how far we are from the present when we enter a Spanish church. The ecstatic attitude of devotion which the worshippers sometimes fall into without thought of any observer is equally unlike the elegant grace of the French worshipper or the rigid decorum of the English, while perhaps, if it is a great festival, groups of women cluster on the ground with their fans at the base of the piers, and the children quietly play about in corners with unchecked and innocent freedom. Nor are the dogs and cats less free than the children; at Tudela I have even seen a dog curled up in the most comfortable chair by the high altar, probably left in charge of the church, for he raised his head in a watchful manner when the stranger entered; and in Gerona Cathedral there was a cat who would stroll about in front of the *capilla mayor* during the progress of Mass, receiving the caresses of the passers-by. It would be a serious mistake to see here any indifference to religion; on the contrary, this easy familiarity with sacred things is simply the attitude of those who in Wordsworth's phrase "lie in Abraham's bosom all the year," and do not, as often among ourselves, enter a church once a week to prove how severely respectable, for the example of others, they can on occasion show themselves to be.

This "easy familiarity with sacred things" is an essential part of the Spaniard's character; his religion permeates his whole life. In another passage Mr. Havelock Ellis, in speaking of the anticlerical movement and the growth of scepticism in Spain, says:

> We cannot well imagine the religious element in the Spanish people dying out. It is too deeply ingrained in the very fibre of the race. If Catholicism had no existence in Spain one feels that the Spaniards would invent it. Mysticism, even monasticism, is part of their very temperament, a temperament at once so ardent and sensuous, so ascetic and unflinching.

These lines describe the Spanish character derived, according to the author, partly from race and partly from the influences of climate. The Spaniard is descended from African stock, says Mr. Havelock Ellis,

> and remains to-day, in the best sense of the word, a savage. His childlike simplicity and intensity of feeling, his hardness and austerity combined with disdain for the superfluous, his love of idleness tempered by the aptitude for violent action, his indifference to persons and interests outside the circle of his own life—these characteristics and the like, which have always marked the Spaniard, mark also the savage.

The climate of Spain has further accentuated these characteristics, with the result that no nation, perhaps, has been so persistently misunderstood as the Spanish. The charge of cruelty, for instance, which is so often made against them is no more merited by them than by any other nation. It is true that the Spaniard is indifferent to pain, but this does not prevent his being capable of deep tenderness and indulgence. Strange as it may sound, many of the Spanish casuists have been famous for their indulgent views in theology, and even the Inquisition is now recognized to have been less cruel than many other religious persecuting bodies. Mr. Havelock Ellis cites Valera as his authority for saying that the town of Salem alone

> was responsible for more torture in the name of religion than can be put to the account of the Holy Office from California to the Straits of Magellan.

Those who accuse Spaniards of cruelty would do well to remember that it was in Spain that the first hospital for the insane was founded six hundred years ago, and that the treatment of the inmates was infinitely more enlightened than in our own asylums two or three centuries later. The bull-fight is another form of Spanish cruelty which the Englishman is fond of decrying; but, as Mr. Havelock Ellis justly remarks:

> In Spain itself only a section of the public cares for bull-fights; very many Spaniards of all classes do not go and do not like it; the party of religion and the party of progress are equally opposed to it. Certainly it is the national sport of Spain, just as horse racing and betting constitute the national sport of England. In both cases alike we must not identify the whole nation with the national sport. Apart from its repulsive elements—which are as objectionable to many Spaniards as to the stranger—the bull-fight is a fascinating exhibition of skill; and, since the contest with the bull is very rapid and the animal's death swift and certain, it must be said that if sport is to be defended at all, this kind of sport compares favourably with fox hunting or pheasant shooting. The element of risk also, the fact that the would-be slayer may himself be slain, adds an element of dignity which is wanting in nearly every other form of European sport.

If our insular ideas concerning Spanish men are revolutionized by Mr. Havelock Ellis, this is still more the case with regard to Spanish women, whom he is inclined to regard on the whole as superior to their countrymen. The languorous, passionate beauties so often depicted in novels, plays, and pictures are not typically Spanish. On the contrary, the typical Spanish woman is specially marked by sweetness and strength; the ideal Spanish woman is at once strong, independent, self-contained, and at the same time wholesomely gracious and gentle. She is, as Valera says, "angelic but robust." This last-named quality is very marked; the average Spanish woman is not only strong, she possesses a vast fund of energy. Mr. Havelock Ellis says:

> Not long since I spent a Sunday in the old Castilian city of Palencia, and watched how the women—stout and matronly as well as young women—amused themselves at a game between bowls and ninepins, casting the large heavy balls along the grass with unwearying satisfaction during the whole of a long afternoon in the most businesslike and yet gleeful manner, while a few children stood looking on at their elders. I have never seen English women of the people, or indeed the women of any other land, playing at anything so vigorously healthy and innocent for the sheer joy of muscular exertion, and a race whose mothers have so much wholesome energy to spare can scarcely be very exhausted or decadent.

These last few words are significant, for they express the author's opinion of the state of modern Spain. All her modern writers are pessimistic regarding her future, but Mr. Havelock Ellis does not agree with them. The real root of the evil, he holds, lies in the Spaniard's belief that the life of his country is finished, that the race is decadent, unable to carry on the traditions of their ancestors. Let them but once realize that this is not the case, that the bulk of the Spanish nation is as sound and strong as ever, and their problem will be solved. The concluding words of this interesting and instructive book are full of hope and encouragement, and Mr. Havelock Ellis leaves us with the conviction that there is a future, and that a glorious one, for Spain.

FORENSIC MEDICINE.

WHAT are the relative values of the precipitin test and the "deviation of the complement" test for the forensic differentiation of human from animal blood? This is the question which is discussed by several eminent German pathologists in a pamphlet published recently in Berlin.[4] From his high position as an authority on forensic medicine Professor Uhlenhuth's opinion is naturally of great importance. In his view, the "deviation of the complement" method, originated by Bordet and Gengou[5] and adopted by Neisser and Sachs, is of great service in scientific laboratory work where pure albuminous solutions are under investigation. But he attaches less value to it in forensic practice, where we have to deal with traces of blood subjected to all sorts of contaminations. Fallacies arising from many of these complications may be eliminated by special care and the employment of control experiments, but nevertheless difficulties arise from the fact that the "deviation" method is so sensitive that it gives positive results with sweat, mucus, nasal secretion, saliva, etc., and hence may be misleading. These difficulties, he maintains, are not encountered in the precipitin method as employed by him. He therefore considers that it is not permissible in forensic practice to regard a positive result given by the Neisser-Sachs method as overruling a negative outcome of the precipitin test. It is, however, urged by some of the contributors, who regard the "deviation" test as a useful adjunct to the precipitin test even in forensic medicine, that a negative result obtained by the former and more delicate test would, when found, be of service in strengthening the assumption that the presence of the particular blood under consideration could be excluded.

The little book of 128 pages upon toxicology, by F. A. ROSSMÄSSLER,[6] is wonderfully comprehensive considering its size, and affords an excellent, though rather superficial, summary of the chief facts connected with a large number of poisons. The author deals with all the important, and with a comparatively large number

[4] *Nachprüfung des von Neisser und Sachs angegebenen Verfahrens zur forensichen Unterscheidung von Menschen- und Tierblut.* By various authors. Abdruck aus dem klinischen Jahrbuch, Bd. XIX. Jena: Gustav Fischer. 1908. (Roy. 8vo, pp. 49. M.1.50.)

[5] BRITISH MEDICAL JOURNAL, February 13th, 1909, p. 415.

[6] *Toxicologie oder die Lehre von den Giften.* Von F. A. Rossmässler. Wien and Leipzig: A. Hartleben. 1908. (Cr. 8vo, pp. 141. M. 3.)

of unimportant, poisonous substances in a brief but interesting manner, and the book can be recommended to those who only desire to gain a bird's-eye view of the subject. The author states in his preface that, in his opinion, every educated person should know something of poisons and their effects upon the human body, and it has evidently been his object to write a book which would satisfy the requirements of the educated public generally rather than the medical public in particular; he consequently, therefore, avoids technical expressions as far as possible. Perhaps the most complete part of the book is that which treats of poisons derived from plants, and the author has allowed himself more latitude in these chapters than in those devoted to chemical poisons. The chapter dealing with animal alkaloids is very brief and uninstructive. On the whole, however, the book is good as far as it goes, but it does not go very far.

A CONDEMNATION OF ALCOHOL.

WE have already noticed several of the contributions to the system of treatment of diseases of digestion and metabolism which is being published in fasciculi by Professor A. Albu, of Berlin, and we have recently received the section on the indications for the administration of alcohol in the treatment of internal diseases, by Professor GEORG ROSENFELD, of Breslau,[6] which is one of the most uncompromising condemnations of the use of alcohol in disease that has ever appeared in a medical publication not avowedly inspired by temperance principles. According to Professor Rosenfeld the evidence that alcohol is capable of preventing waste is contradictory, and the balance is against it. He believes that to promote the combustion of fat in the body the presence of some other substance is necessary, which he compares to the wood and paper used to start a coal fire, and that carbohydrate is this substance needed for the oxidation of fat. If carbohydrate is absent fat accumulates in the liver. He divides carbohydrates into hepatic and non-hepatic, an example of the latter being seen when sugar is injected into the veins in animals. It is a peculiarity of this non-hepatic sugar that it is oxidizable by animals depancreatized or poisoned by phloridzin. It has a tissue-sparing effect, and in certain people alcohol has the power of converting hepatic into non-hepatic sugar, thus acting as a tissue sparer. This occurs in people who tend to obesity, and the experiments which had positive results were made on Jews who have a well-known predisposition to become fat. Kuelz in one case of diabetes found that alcohol diminished the sugar; according to Hirschfeld it diminishes the nitrogen, but not the sugar; Neubauer, in experiments upon four patients, found that alcohol diminished the acetone and oxybutyric acid, but had no effect on acetone produced in healthy persons by excessive meat diet; Benedict replaced the fat in a carbohydrate-free diet by alcohol, with the result that the acetone was diminished 29 per cent., while in diabetes it reduced the quantity of sugar. Rosenfeld concludes that alcohol acts in the body as a foodstuff, being oxidized completely, and has a tissue-sparing effect which is manifested either after the first doses or in the course of some days. The effect of alcohol upon the circulation is, he says, altogether unfavourable; it in no way deserves its reputation as a stimulant to the heart, it does not raise the blood pressure or change the tone of the small vessels, while its weakening effect on the heart is shown by the quickening of the pulse-rate after exertion and impairment of the power of the heart to regain its normal rate, while the intravascular friction is raised, probably in consequence of increased viscosity of the blood. In collapse and palpitation and the like it may, he thinks, occasionally be helpful by benumbing the mind and the vasomotor centre, but its continued use leads to retention of lime in the body, and favours calcification of the arteries. In small doses it increases muscular power, but this rise is followed by a greater fall, while large doses are harmful from the first. Mental processes are slowed by it, and, if in habituated persons it stimulates loquacity, this is probably the result of removing the depression which follows its use. Small diluted doses increase the secretion of hydrochloric acid, but not of pepsin, while concentrated alcohol checks the flow of gastric juice and excites the secretion of mucus. It diminishes bowel peristalsis, this action being aided by the presence of tannin in wines. Its indications in disease are therefore, according to Professor Rosenfeld, very limited, although it has been used in nearly every malady, either to stimulate the heart or to spare the tissues or to keep up the strength, to promote appetite, or to strengthen the nervous system. He admits that in septic conditions and influenza it lessens the feeling of illness, but he doubts whether it has any other effect; and he states that while no one believes it to influence the local processes in enteric fever and pneumonia, experiments show that it increases the virulence of infective poisons, diminishes the formation of antibodies and of phagocytosis, while clinical experience shows better results where these diseases are treated without alcohol, the results obtained at the Temperance Hospital in London being quoted in support of this last statement. Its only advantage in phthisis is to diminish the patient's consciousness of his illness; in heart disease it only does harm, in stomach diseases its indications are limited, and its effect in relieving the sense of repletion can only be due to its action on the nervous system. Its constipating effect may indicate its use in diarrhoea, but this advantage is only temporary. He believes that it relieves the tenesmus of the bladder in gonorrhoea, but increases the excretion of uric acid. It may be useful in advanced cases of diabetes, where there is great intolerance of carbohydrates. The only benefit that can be derived from it in nervous diseases is as a narcotic, and here, in accordance with the majority of the profession, Professor Rosenfeld prefers other means.

Finally, he concludes that by abstaining from the use of alcohol in the treatment of disease we shall be acting in accordance with the fundamental principle: *Non nocere.*

[6] *Sammlung zwangloser Abhandlungen aus dem Gebiete der Verdauungs- und Stoffwechsels-Krankheiten.* Herausgegeben von Professor Dr. A. Albu. I Band. Heft 5. *Das Indikationsgebiet des Alkohols bei der Behandlung Innerer Krankheiten.* Von Professor Dr. Georg Rosenfeld. Breslau, Halle-a.-S.: C. Marhold. 1908. (Med. 8vo, pp. 48. M.1.20.)

SNAKE POISONING.

SIR LAUDER BRUNTON has issued, in a volume entitled *On the Poison of Venomous Snakes and the Methods of Preventing Death from their Bite*,[7] reprints of five papers written conjointly by himself and the late Sir JOSEPH FAYRER, with the co-operation in one case of Major LEONARD ROGERS, I.M.S. The earliest of the papers is dated 1873; the most recent—that on a method of preventing death from snake-bite, capable of common and easy practical application—in 1904. The earlier papers are classical, although we suspect that they are more often quoted at second hand than from the originals. In his preface Sir Lauder Brunton divides the writers of scientific papers into two classes—the "ten-year school," who systematically neglect all work except that done within the last ten years; and the conscientious workers, who try to find out all that has been done in their own field of investigation, so that their observations may be rightly fitted in and help to build up a solid structure of knowledge. It is in the interests of these conscientious workers that he has published this volume, believing that it may now be difficult to obtain original copies of the papers, and that therefore observations of considerable importance may be overlooked. As an instance he states that Calmette has credited Lacerda with the discovery of the antidotal power of potassium permanganate, and to himself that of chloride of gold, whereas it appears that the first-named salt was used by Fayrer in 1869, the observations being recorded by him in 1872; while the similar action of gold chloride was published by Brunton and Fayrer in 1878. The volume in a way forms a small memorial to the late Sir Joseph Fayrer, and is all the more appropriate because the whole edition of several of his works were destroyed by fire some ten years or more ago.

NOTES ON BOOKS.

THE scope of the *Public Schools and Preparatory Schools Year Book*[8] is sufficiently indicated by its title. The volume for 1909 is the twentieth. The main part of the book consists of a list of public schools, that term being

[7] London: Macmillan and Co., Limited. 1909. (Demy 8vo, pp. 174. 2s. 6d.)

[8] *The Public Schools Year Book and Preparatory Schools Year Book, 1909.* London: The Year Book Press (Swan Sonnenschein). (Cr. 8vo pp. 703. 3s. 6d.)

accepted in a liberal sense; particulars as to governing body, list of masters, number of boys, general education, entrance examination, entrance scholarships, and other scholarships, and fees are given. The headmasters' conference last December recommended that this publication should be adopted as its official book of reference, and the next annual issue will appear with this semi-official recognition. There are short articles about Oxford and Cambridge certificate examinations, and on how to enter various professions, including the medical profession, and on Colonial openings; finally, there is a general list of preparatory schools. Altogether the volume will be found useful by any father of sons who has not yet made up his mind what school to select.

The ninth edition of *Saunders's Pocket Medical Formulary*[9] has been revised by Dr. W. M. POWELL of Philadelphia, who states in the preface that by omitting formulae which had become out of date space has been gained for the introduction of others, illustrating not only the use of approved new remedies, but also the modern application of many old ones. The volume contains a set of prescriptions arranged under an alphabetical list of diseases. It has blank interleaves for additional formulae. A book of this kind will often be found useful by suggesting a new drug or new combination.

The Year Book of Pharmacy for 1908[10] presents the usual features of this useful publication, and contains abstracts of the principal papers on pharmaceutical subjects which have appeared in British and foreign journals during the year; these abstracts are arranged under the headings Chemistry, Materia Medica, and Pharmacy. Those grouped as chemistry occupy 220 pages, or over one-third of the entire book; the papers of which a summary is given are of very varied character, dealing with identity and purity tests for a large number of medicinal substances, assay processes for drugs, newly-discovered active principles, etc. The abstracts under the sections Materia Medica and Pharmacy are much fewer in number; the last-named section includes a considerable number of galenical formulae published during the year. The second part of the book is the official account of the proceedings of the British Pharmaceutical Conference held in 1908 at Aberdeen, and includes the full text of the papers presented at that meeting, with the discussions upon them.

In *Analytical Notes, 1908*,[11] issued by Messrs. Evans, Sons, Lescher, and Webb, this firm publishes concise accounts of the tests applied in their laboratories to large numbers of commercial specimens of drugs and chemicals. Similar little books of laboratory records are now published by several of the larger firms, and form a very useful indication of the ordinary prevailing standards of purity in drugs. A good deal of importance is evidently attached to maintaining a sufficiently strict limit to the traces of arsenic and lead permissible in chemicals, and far greater purity in this respect prevails now than was the case a few years ago. Of forty-five samples of citric acid only four contained as much as 1 part of arsenic per million, and all but seven contained less than 10 parts of lead per million, the seven containing between 10 and 20 parts. Sodium sulphate contained as much as 4 parts of arsenic per million in four samples out of 100, and sodium bicarbonate conformed to a very similar standard. Figures are given for about 150 different drugs and chemicals.

[9] *Saunders's Pocket Medical Formulary.* By W. M. Powell, M.D Ninth edition. Philadelphia and London: W. B. Saunders and Co 1909. (Fcap. 8vo, pp. 315. 7s. 6d.)

[10] *The Year Book of Pharmacy and Transactions of the British Pharmaceutical Conference, 1908.* Editor of the Year Book, J. O. Braithwaite. Editors of the Transactions, E. Saville Peck, M.A., and E. White, B.Sc., F.I.C. London: J. and A. Churchill. 1908. (Demy 8vo, pp. 606.)

[11] *Analytical Notes, 1908.* Liverpool: Evans, Sons, Lescher, and Webb. (Crown 8vo, pp. 48. Free on application.)

THE Belgian Government is making arrangements for the establishment of an Institute of Tropical Medicine at Antwerp.

THE annual report of the Trained Nurses' Annuity Fund for 1908 states that in view of the Old Age Pension Act the regulations have been revised, and it is hoped that in future the society will be more free to help younger nurses who become incapacitated. A candidate for an annuity must have had at least three years' training and seven years' subsequent nursing, have attained the age of 40, and be more or less incapacitated for work. There is, however, at present no vacant annuity. Further particulars can be obtained on application to Dr. A. Ogier Ward, 73, Cheapside, E.C.

MEDICINAL AND DIETETIC PREPARATIONS.

Tablets for the Production of Lotions.

UNDER the name "Soltabs," Messrs. Hewlett and Son, Ltd., (Charlotte Street, London, E.C.), are supplying a series of soluble tablets for the production of lotions. These are distinguished by their shape from tablets for internal administration. We have examined samples of nasal eucalyptol comp. which have been submitted, consisting of borax and sodium bicarbonate with several antiseptics, and find that they can be readily crushed or broken, and dissolve without difficulty to form a clear solution.

New Theobromine Compounds.

We have received from Messrs. Widenmann, Broicher, and Co. (33, Lime Street, London, E.C.), samples of two new derivatives of theobromine introduced by Messrs. Zimmer and Co., Frankfort. The first of these is called Eustenin, and is theobromine sodium iodide $C_7H_7N_4O_2Na_2I$; the formula shows that it contains 36 per cent. of iodine, or 43 per cent. of sodium iodide. Eustenin is recommended for use in arterio-sclerosis and allied conditions. We found it to be a white powder of strongly alkaline reaction, soluble in water, the solution being stable with alkalis, but decomposed after a short time by acids, theobromine being deposited in crystals. The other new theobromine derivative, Theolactin, is also alkaline in reaction, but its solution is less stable; it must be dissolved in warm water, and on cooling the solution theobromine gradually separates unless additional alkali is added. This compound is theobromine sodium lactate, and therefore very similar in constitution to diuretin. It is a granular white powder, very hygroscopic in nature, and is recommended as a diuretic free from injurious action on the heart, which may be employed alternatively with other compounds when it is desired to change the diuretic administered in any given case.

Evaporating Skin Lotions.

We have received samples of a number of lotions prepared by Messrs. C. J. Hewlett and Son, Ltd. (Charlotte Street, London, E.C.), intended for use in cases of eczema in which fatty bases are undesirable. Various formulae are employed, including sulphur, zinc oxide, resorcin, solution of coal tar, and ichthyol. The lotions are of a slightly gelatinous consistency, and, when applied to the skin, the vehicle, which is partly alcoholic, evaporates fairly rapidly, leaving the medicaments in a dry film, which is not readily rubbed off.

Tablets of Glycerophosphates with Haemoglobin.

In spite of the doubts that have been cast on the superiority of glycerophosphates to inorganic phosphates, these compounds continue to find much favour, and the number of ready-made combinations in which they are supplied is continually increasing. A useful form for their exhibition is provided by the tablets of compound glycerophosphates with haemoglobin, prepared by Messrs. C. J. Hewlett and Sons, Ltd. (Charlotte Street, London, E.C.), a sample of which we have examined. These are sugar-coated tablets containing glycerophosphates of calcium, potassium, sodium, iron, and magnesium, with caffeine, strychnine, and haemoglobin. There are obvious conveniences in the tablet form for such a medicine, which is likely to be ordered for patients who are following their ordinary occupations.

MEDICAL AND SURGICAL APPLIANCES.

Tablets for Testing Urine.

VARIOUS devices have been introduced from time to time for the purpose of simplifying the clinical testing of urine, especially for sugar and albumen, and perhaps the most successful of these is the employment of tablets of known strength for preparing the respective agents at the moment when they are required. Mr. E. Merck (16, Jewry Street, London, E.C.) has submitted samples of a number of such tablets which he has recently placed on the market, and our examination of these has shown them to be very satisfactory for the purpose. They include tablets for the preparation of Fehling's solution for the detection or quantitative determination of glucose, and tablets for the production of Esbach's Reagent, Riegler's Reagent, and acid-ferrocyanide solution, for the detection of albumen; the first named of these three can also be used for its approximate determination by means of an albuminometer.

Nova et Vetera.

CALENTURE.

EVERY student of English literature must have come across in it many allusions to a strange malady called "Calenture," a term which appears to have been introduced into our language at the end of Elizabeth's reign, when our seamen came into communication with the Spaniards. The word is derived from the Spanish *calentura*, fever, and this from the Latin *calere*, to be hot.

One of the earliest reference to this malady is to be found in Nashe's *Christ's Tears over Jerusalem*, 1593: "Then (as the possessed with the Calenture) thou shalt offer to leave." Another occurs in the *London Prodigal*, 1605: "Such men die mad as of a calenture." In Hawkins's *Voyages in the South Seas*, 1622, we have evidence that calms at sea were thought to be favourable to the production of the disease: "To avoid the calmes, which . . . breed calentures, which we call burning fevers." Apparently the fever was supposed to have some effect on the liver, for in Massinger's play, *The Fatal Dowry* (Act. III, sc. 1), 1632, Charalois is made to say:

> Thou dost strike
> A doubtful coldness to my heart's high beat,
> And shrink'st my liver like the calenture.

Defoe has made us familiar with the word "calenture" from our boyhood. In *Robinson Crusoe* we read, "Yet even in this voyage I had my misfortunes too; particularly that I was continually sick, being thrown into a violent calenture by the excessive heat of the climate." The disease was believed especially to attack sailors in the tropics and and to cause a delirium in which the sufferers fancy the sea to be green fields, and desire to leap into it.

> So by a calenture misled,
> The mariner with rapture sees
> On the smooth ocean's azure bed,
> Enamelled fields and verdant trees.

Soon after Swift wrote these lines, Pope and Theobald were in hot disputation over the meaning of a sentence in *Henry V* (ii, 3) describing the death of Falstaff. In the folios we read, "and a Table of green fields," but Theobald in his edition of the play altered the words to "and a' babbled of green fields." This interpretation was rejected by Pope, who maintained that the words were part of a stage direction, which had crept into the text from the margin, Greenfield being the name of a property man. Theobald, in defence of his correction, remarked: "It is certainly observable of People near Death, when they are delirious by a Fever that they talk of moving; as it is of Those in a Calenture, that they have their Heads run on green Fields." Wordsworth in his poem, *The Brothers*, gives an imaginary description of a sailor who on a voyage looks over the side of the vessel and sees in the deep the verdant hills of his native country and sheep grazing on them. In a footnote, it is stated, "This description of the Calenture is sketched from an imperfect recollection of an admirable one in prose by Mr. Gilbert, author of *The Hurricane*." Somewhat recently, in a magazine now defunct, the following curious story was told as a fact. During a dead calm at sea a boy on a ship who had been remarkable on the voyage for his high spirits and love for practical joking was observed one day to be despondent, listless, and apparently in a state of ill-health. He would not own, though, that he was unwell, and when spoken to appeared to be inattentive to what was said and preoccupied in mind. On one occasion, when asked how he was, he burst into tears, moved away from his interrogator, and gazed intently into the sea. An old sailor advised that he should be taken below, saying, "The calenture has come upon him." Almost at that instant, the boy flung himself into the sea. He was rescued, however, and the contact with the cold water seemed to have a beneficial effect, for he shortly afterwards regained his cheerfulness. "He told us," says the narrator, "that he had all that day been thinking of home, until he had persuaded himself that he saw his mother's cottage in the waves, and the trees and green fields glittering in the sunshine around it, and that he could not resist the desire to leap to them again!"

According to old medical writers, calenture is a species of phrenitis—a term which has been used in the past to signify phrensy, delirium, brain fever, and encephalitis. An account of the complaint is given by Bonetus, and also by Oliver and Stubbs. Oliver says: "In the month of Aug., 1693, I was called upon about four a Clock in the morning to see a Sailor on board the *Albemarle*, Man of War, in a violent Calenture. . . . When I saw him first I found him in the hands of 3 or 4 of his Comrades, who were hardly able to manage him, because of his strugglings and constant endeavours to get from them. I observed he very often cried out he would go into the green fields, his looks were as furious and wild as those of a Lyon, and every now and then he would heartily curse those that held him." It is then related how the man was bled, and recovered with some weakness from loss of blood. "This was the only Calenture," the writer adds, "I saw all the while I was in the Fleet for near three years, two summers of which I served in the Mediterranean, and this happened in the Bay of Biscay, in the Latitude of 47, in the month of August. They are, I hear, more frequent in warmer climates, tho. very often undiscovered.

"The reason I imagine to be this. When they are seized with the violent Heat and Disorder which for the most happens in the night, they steal privately overboard into the Sea, imagining they're going into green Fields. . . .

"This Distemper I am of opinion is what we call a Phrenitis, occasioned by a more than ordinary Effervescence and Heat of the Blood, which distracting and confounding, if not inflaming the Animal Spirits, the proper and immediate ministers of the mind, is the cause of all those irregular motions, violent explosions, and convulsions." (*Philosoph. Trans.*, vol. xxiv.)

Calenture, when the term was not employed in the general sense of fever or ardour or zeal, seems to have been what is now called thermic fever or sunstroke occurring in sailors at sea. In bygone times, when there were no steamboats sailors were much more exposed to the burning heat of the sun than they are now, especially during calms at sea. Their sufferings must have been terrible, and it can easily be conceived that they frequently became delirious and were subject to sensory illusions. Indeed, it has been said that sailors becalmed under a vertical sun in the midst of the wide ocean have listened in trembling wonder to what they imagined to be the chimes of their own village bells. In such solitude and distress it would be likely for home-loving English sailors to crave for a sight of their native country, and if delirious their "heads" to "run on green Fields."

There may be some truth in what Keats has observed that when we are ailing we are more sensible of the beauties of Nature. While suffering from consumption, he remarked to a friend, "Like poor Falstaff, though I do not 'babble' I think of green fields."

Again, it must be remembered that ships in former days were often ill-provisioned, so that sailors suffered much from hunger and thirst. Shipwrecked mariners, it is well known, either from the effects of want of food or water, or both, get delirious, have illusions, and sometimes throw themselves overboard. The captain of a wrecked vessel, who suffered from starvation but not from thirst, told Goldsmith that "when his health was almost destroyed, a thousand strange images rose upon his mind, and every one of his senses began to bring him wrong information."[1] Intense thirst also induces great nervous excitability and delirium. Experiments made by Harless in Munich showed that the nerves gain an extraordinary increase in their excitability as their proportion of water decreases.

It would be interesting to know if sailors ever now, as the result of heat upon the body, or hunger, or thirst, manifest a desire to cast themselves into the sea, believing it to be green fields. The present writer has been unable to find out from seafarers that they have any knowledge of a fever at sea producing such a peculiar form of delirium as is ascribed by old authors to calenture.

EDWARD KNIGHT, L.R.C.P. and S.Edin.

[1] *An History of the Earth*, 1774, II, 126.

THE TWENTIETH CENTURY DISEASE.

ANTINEURASTHIN, A BRAIN AND NERVE FOOD.

READERS of daily or weekly papers or magazines who allow their eyes occasionally to travel over the advertisement pages of these journals can hardly fail to have seen somewhat frequently a lengthy advertisement of a preparation called Dr. Hartmann's Antineurasthin. The advertisement is usually headed "The Twentieth Century Disease." This, it appears, is neurasthenia, and the various stages of its manifestations are set out in a sort of table, beginning with "Sensitiveness" and ending with "Suicidal Tendency." Antineurasthin, referred to as "this marvellous twentieth century brain and nerve food discovery," is put forward as a specific for the cure of neurasthenia.

Dr. Hartmann's discovery is one that should personally and very deeply interest brain-workers in all walks of life. Every day are heard and seen all too serious evidences of the undue strain of their intense work on the vital power of the body. And now, on the highest possible authority, it is heralded that science has proved equal to the stern necessity which demanded the discovery of "Antineurasthin," the brain and nerve food.

For greater convenience "Antineurasthin" is compressed into small tablets, and although its beneficial effect on the brain and senses is so immediate, yet there is none of the depressing reaction that follows the administration of artificial drug stimulants, "Antineurasthin" being a special brain and nerve nutrient, and not a brain and nerve drug-irritant. No longer need the brain-worker struggle on under the cloud of fear of failing powers of brain and body. He or she may, by including "Antineurasthin" as an article vitally necessary in the daily dietary, build up and maintain that perfect balance of mental and physical power which alone can uphold health and happiness.

It appears that this article was sold in Germany before being introduced here, and it was included in the series of proprietary preparations analysed by Dr. Zernik, whose results have been quoted from in our columns from time to time. According to Zernik's analysis[1] it consists of dry yolk of egg, milk sugar, a small quantity of starch, dextrin, and an aromatic substance.

A detailed quantitative analysis of "Antineurasthin" as sold in this country gave the results described below. A 4s. 6d. box contained twenty-four tablets, having an average weight of 30½ grains each. The directions are:

To be taken when and as required, particularly before or after great exertions (bodily and mental); in all cases of nervous disorders and mental affections, general debility, etc.

Usual dose 3-4 tablets a day between meals. Antineurasthin contains no injurious ingredients, and is therefore absolutely harmless to the most delicate, even if taken in large quantities.

Analysis showed the presence of:

Proteid	...	26.4 per cent.
Fat	...	2.5 ,,
Sugar of milk	...	32.8 ,,
Ash	...	5.7 ,,
Water	...	8.3 ,,
Gum	about	2.0 ,,
Aromatic substances	...	traces
Potato starch (by difference)	about	22.0 ,,

The material of the tablets is nearly white, with yellow particles like dried egg-yolk distributed through it; extraction with appropriate solvents proved a fair trace of lecithin to be present; if the whole of the fat present were derived from egg-yolk it would represent 3.8 per cent. of dried yolk, equivalent to 7.7 per cent. of fresh liquid yolk in the tablets; this accounts for 1.3 out of the 26.4 per cent. of proteid. Sulphur in organic combination was found to be present to the extent of 0.09 per cent.; sulphur is practically absent from the yolk, but occurs in the white of eggs, and the amount found corresponds to 5.4 per cent. of dried, or about 38.6 per cent. of liquid, egg-albumen in the tablet; a further 5.1 out of the 26.4 per cent. of proteid is thus accounted for. This leaves 20 per cent. of proteid, and this stands in about the same ratio to 32.8 per cent. of milk sugar, and about 5 per cent. of ash (deducting the ash of the egg and gum), as corresponds to the composition of a dried separated milk. The ash consisted principally of calcium phosphate, like the ash of milk. The aromatic substances appeared to include a trace of vanilla and of some other substance that could not be identified; these are probably added to serve at the same time as flavouring agents and preservatives.

[1] BRITISH MEDICAL JOURNAL, November 3rd, 1906, p. 1223.

The starch was seen by the microscope to be very abundant, corresponding in appearance to the amount required by difference. On the above assumptions the composition of the tablets would be approximately:

Dry yolk of egg	3.8 per cent.
Dry white of egg	5.4 ,,
Dry separated milk	57.8 ,,
Gum	2.0 ,,
Potato starch	22.7 ,,
Moisture	8.3 ,,
Aromatic substances	traces.

The daily dose of four tablets, or 122 grains, would, according to this formula, contain the equivalent of 10 grains of yolk and 43 grains of white of egg (not dried); the ratio between these is about the same as exists in an average egg, and the two may be put together and regarded as about a teaspoonful of fresh egg; in addition, the daily dose would represent about 2 oz., or a quarter of a tumblerful, of separated milk and a little starch.

THE BRITISH MEDICAL BENEVOLENT FUND.

AT the February meeting of the Committee twenty cases were considered and grants amounting to £190 made to sixteen of the applicants. Appended is an abstract of the cases relieved:

1. Widow, aged 57, of L.R.C.P.Edin. No income; endeavours to support herself by letting lodgings, but has great difficulty in making ends meet. Only child unable to help. Relieved six times, £70. Voted, £12.

2. Widow, aged 84, of M.D.Aberd. Quite unprovided for at husband's death sixteen years ago and dependent on two daughters who are governesses. Voted £18.

3. Widow, aged 50, of L.R.C.P.Irel., L.R.C.S.Edin. Ought to receive £40 a year from property in Ireland, but tenants refuse to pay the rent. Three children unable to help. Voted £12.

4. Daughter, aged 48, of L.R.C.P., L.R.C.S.Edin. Has maintained herself for several years by teaching, but has recently been operated upon for malignant disease, and is now practically destitute. Voted £18.

5. Daughter, aged 47, of M.R.C.S.Eng. Used to be fairly provided for, but, owing to great depreciation of her investments and unavoidable expenses due to ill-health and two surgical operations, is now obliged to seek a home with a relation who can ill afford to help. Voted £10.

6. M.D.Glas., aged 70. Has been incapacitated for the last nine months, and is now at an end of his resources. No children. Voted £12.

7. Daughter, aged 41, of late M.R.C.S. After father's death took to nursing, but contracted blood poisoning and has never recovered; is now permanently incapacitated and quite deaf. Voted £12.

8. Daughter, aged 57, of M.D.Edin. Since father's death 40 years ago has supported herself by teaching, but finds it increasingly difficult to do so, and is now broken down in health and ordered to take a rest. Voted £12.

9. M.R.C.S.Eng., aged 66. Quite incapacitated for the last year; income less than £1 a week, derived from sickness allowance and a small Poor Law pension. Three daughters, but only one self-supporting, the other two being chronic invalids. Voted £18.

10. Widow, aged 67, of F.R.C.S.Eng. Only income, £20 a year; no children, health failing. Relieved five times, £40. Voted £5.

11. Daughter, aged 61, of late M.R.C.S., L.R.C.P. Income £30 a year, derived from two charitable institutions. Is quite blind and in bad health. Relieved four times, £32. Voted £10.

12. Widow, aged 69, of M.R.C.S., L.S.A. Since husband's death several years ago supported herself by acting as nurse-companion, but now finds increasing difficulty in obtaining cases, and has exhausted her small savings. No children. Relieved four times, £33. Voted £10.

13. Widow, aged 40, of M.D.R.U.I. Quite unprovided for at husband's death ten years ago. Now acts as a housekeeper, receiving a home for herself and boy (a candidate for Epsom College) in lieu of salary. Relieved ten times, £119. Voted £12.

14. Daughter, aged 52, of late M.R.C.S. Was left an orphan, quite unprovided for, when 5 years old, and now acts as a companion but receives no salary and requires a little help for unavoidable expenses. Relieved once, £5. Voted £5.

15. Widow, aged 47, of M.B.Durh., M.R.C.S. No income; lets lodgings. Two children, one a boy at Epsom College. Relieved once, £12. Voted £12.

16. Daughter, aged 57, of late L.S.A. Endeavours to support herself by letting lodgings; no other source of income. Relieved once, £10. Voted £12.

REPORT

OF THE

Royal Commission on the Poor Laws and Relief of Distress.

[SECOND NOTICE.]

WE gave last week (pages 479–484) an account of the general scope of the Majority and Minority Reports of the Royal Commission on the Poor Laws and Relief of Distress.* In particular full details were quoted with regard to the suggestions of both reports as to medical relief; there remain, however, many other matters in these very voluminous reports to which we propose to refer as occasion serves. Many evils in the present system are disclosed, and far-reaching changes are suggested in both reports. Indeed, as we have already pointed out, the majority and minority agree to a very large extent as to the evils existing, the chief differences being as to the remedies which should be suggested. The task of stating the points of agreement is considerably simplified if we accept the statement put forward by Mr. and Mrs. Sidney Webb in the volume entitled, *The Break-up of the Poor Law*; it is the first of two volumes "edited with introduction by Sidney and Beatrice Webb,"† and consists of the first twelve chapters of the Minority Report, without the notes and references, but containing an introduction nine pages long, which is an expression of the views held by Mr. and Mrs. Sidney Webb. In this introduction we find the following observations upon the points of agreement:

Although the Majority Report is flanked by half a dozen dissents—of which the longest is here republished—the members of the Commission are remarkable in the extent of their revolutionary unanimity. All the Commissioners, without exception, agree that drastic changes in the Poor Law and its administration are urgently required; all agree that the "principles of 1834," whatever they once were, are now hopelessly antiquated and inapplicable to the present state of things;[1] all agree even in discarding the very terminology of the Poor Law, to which administrators and paupers alike have grown accustomed, in order to mark the completeness of the break from the past: all agree that the boards of guardians in town and country alike must imperatively and immediately be replaced by some other authority; all agree in condemning, and in recommending for abolition, the general mixed workhouse, which has been for seventy-five years the characteristic feature of the English Poor Law administration; all agree that the treatment of the children, the sick, and the aged needs to be greatly improved. Similarly, all but two out of the eighteen agree that the union area, which has dominated English administrative geography for more than half a century, must disappear from the map; that the future unit of local administration must be the county borough and the county; and that the county borough councils and county councils must add to their other functions those hitherto discharged by the boards of guardians. There has, we think, never been a representative Royal Commission, constituted of members of such diverse opinions, dealing with a subject of so great an extent, and of such far-reaching importance, which has, after three years' investigation, found itself agreeing with so much unanimity to conclusions of such sweeping character.

Authors' Footnote.—[1] "The administrators of the Poor Law," we are told in the Majority Report, "are, in fact, endeavouring to apply the rigid system of 1834 to a condition of affairs which it was never intended to meet. What is wanted is not to abolish the Poor Law, but to widen, strengthen, and humanize the Poor Law" (par. 337 of Chapter 1 of Part VI of Majority Report).

The rest of the introduction is devoted to a critical review of the recommendations of the Majority Report. The minority resent the reflections made upon the personal shortcomings of the Poor Law guardians, and appear disposed to defend them on the ground mainly that some of them are actuated by the best motives, and have given much time and energy to the work, and that all have been hampered and interfered with by the creation of other authorities whose duties overlap those of the guardians. The minority declare that the recommendations of the majority propose the setting-up again of what is practically the same sort of Poor Law relief with new members under another name.

The majority, as was stated last week, propose to place the county council in supreme control in each county, and to require it to appoint special committees for dealing with Public Assistance. The minority propose very much the same thing, that is to say:

"That the boards of guardians in England, Wales, and Ireland, and (at any rate as far as Poor Law functions are concerned) the parish councils in Scotland, together with all combinations of these bodies, should be abolished.

"That the property and liabilities, powers and duties of these Destitution Authorities should be transferred (subject to the necessary adjustments) to the county and county borough councils, strengthened in numbers as may be deemed necessary for their enlarged duties; with suitable modifications to provide for the special circumstances of Scotland and Ireland, and for the cases of the metropolitan boroughs, the non-county boroughs over 10,000 in population, and the urban districts over 20,000 in population."

OVERLAPPING OF AGENCIES PROVIDING MEDICAL ASSISTANCE.

The Majority Report refers to the want of co-operation and consequent overlapping of effort of the various agencies supplying non-institutional medical treatment to the poorer classes; such treatment is supplied by the guardians, sanitary authorities, education authorities, out-patient departments of voluntary hospitals, free dispensaries, provident dispensaries, medical clubs, and friendly societies. It is stated that, except to a very limited extent, there is no real or effective co-operation between the Poor Law and other agencies providing medical assistance, and the Commissioners recommend that there should be co-operation.

Out-patients.

With regard to out-patients the report has the following observations on the right sphere of the voluntary hospital in regard to out-patients:

This problem, in our opinion, lies at the very entrance to any radical reform of the system of medical assistance. In the metropolis, as we have shown, the out-patient departments of the hospitals steadily and enormously enlarge their sphere. Much of this increase is due, rightly and properly, on the one hand to increase in population, and the increasing facility with which the poor in country districts can travel to London, but chiefly to the expensive equipment for dealing with special diseases which science has now placed in the doctor's hands. But these valid grounds for an increase in the work of the out-patient department render it all the more necessary to save them from certain abuses of which we have had ample evidence.

In the first place, the out-patient departments are dealing with a large number of cases for whose treatment the Poor Law authorities are, or should be, responsible. Thus, our special investigator, Miss Roberts, concludes that, if the three hospitals selected for her inquiry be fair samples, "at least 11 per cent. of out-patients at the voluntary (general) hospitals in London are actually Poor Law cases, being in receipt of some form of Poor Law assistance either at the very time they are treated, or within a half year of treatment." Under a co-ordinated system, it might be expedient to refer certain pauper cases to the out-patient department for a second opinion, or for special treatment, but this does not appear to be done to any great extent at present. Accordingly, it may be said that the out-patient departments are performing a great deal of work which should properly be done by the Public Assistance Authorities.

In the second place, it is for consideration whether the Public Assistance Authorities should not also deal with the two following classes of cases, which at present receive treatment from the out-patient departments:

(*a*) Persons who are suffering from chronic ailments.
(*b*) Persons whose home conditions will not allow them to reap any commensurate benefit from such treatment.

In the third place, the benefits of the out-patient departments are being extended to:

(*a*) The well-to-do who can afford to pay private practitioners.
(*b*) Persons sufficiently able to join a provident institution.

189. Until, therefore, the work of the out-patient department is delimited in such a way as to prevent overlapping between its sphere and that of the Public Assistance Authority, and to leave full scope for private practice and provident effort, any endeavour to reform the system of public medical assistance will be locally thwarted. Indeed, all attempts to create order out of the present chaos will be disappointing. Even in the interests of the out-patient departments themselves a reform

*To be purchased, either directly or through any bookseller, from Wyman and Sons (London), Oliver and Boyd (Edinburgh), and E. Ponsonby (Dublin). [Cd. 4499.] Price 5s. 6d.

† Vol. I. *The Break-up of the Poor Law.* Vol. II. *The Public Organization of the Labour Market.* Containing the remainder of the Minority Report. London: Longmans, Green and Co. 1909. (Demy 8vo, pp. 619 and 360: 7s. 6d. and 5s. respectively.)

appears to be expedient in order to secure the greatest benefits from the treatment which they so lavishly bestow, and to prevent those benefits from being abused by the well-to-do. Suggestions for remedying the abuses of the out-patient department have been laid before us by many witnesses, but by none more fully than the representatives of the British Medical Association. We are convinced with them that a strenuous effort should be made to circumscribe the work of the out-patient departments. They should be used almost exclusively for:

(1) Casualties.
(2) Consultations.
(3) Cases requiring expensive equipment for the treatment of special diseases and defects.

To this end the "letter" system should be thoroughly reformed or abolished, and, except for casualties, the recommendation of a medical officer or private practitioner substituted.

190. We recommend, therefore, that the work of the out-patient departments of the voluntary hospitals should be re-organized on these lines; that they should be protected from abuse by the well-to-do; and that a strong endeavour should be made to bring their work into co-operation with that of the new organization of medical assistance which we propose to set up.

Education Authorities.

The Majority Report calls attention to the fact that under the Education (Administrative Provisions) Act, 1907, the education authorities have far-reaching powers for providing medical assistance to children out of the rates. On this subject the report contains the following observations:

We desire also to draw special attention to the position created by the Education (Administrative Provisions) Act, 1907, to which we have already referred. Under that Act the Education Authorities have far-reaching powers of providing medical assistance to school children out of the rates. Unless their work in this respect is co-ordinated with that of the Public Assistance Authorities, the evils of overlapping and consequent waste of effort and money will be accentuated. For example, we have recommended that there should be more medical inspection of all children under the Public Assistance Authorities. Of the 38,000 children of school age who were, on January 1st, 1907, being maintained in Poor Law establishments, about 18,000 were attending public elementary schools. In addition, out of the 171,000 children in receipt of out relief on that date,[1] it may be said that practically all who were of school age were attending such schools. In the absence of co-operation, therefore, it is conceivable that all these children might, simultaneously, be the subject of medical inspection on the part of both the Public Assistance and the Education Authorities, and a large proportion of the children might, likewise, be receiving simultaneously two kinds of medical treatment.

Such a contingency would be regrettable, even if it were to obtain in only a modified degree. We are, however, hopeful that it may be possible to avoid it altogether. We are pleased to observe from the Board of Education Memorandum, dated November 22nd, 1907, explaining to the Education Authorities their duties as to medical inspection and treatment of school children, that the principle of co-operation with other local authorites is not lost sight of. For example, it is recommended that "the work of medical inspection should be carried out in intimate conjunction with the public health authorities, and under the direct supervision of the medical officer of health." Again, as regards the treatment of children by the Education Authorities, it is recommended that it be done, meantime, "through such agencies as are conveniently available."

192. We have here an opportunity of establishing, at the outset, an effective method of co-operation, or division of labour, in the performance of a public duty. The medical inspection of pauper children attending public elementary schools may, no doubt, be effectively carried out as recommended in the Board of Education Memorandum, but any treatment for diseases required by such children would, we think, be provided through the agency of the Public Assistance Authorities.

Further, we think that this principle should be applied to all children attending public elementary schools. Thus, the Sanitary Authorities, whose functions are mainly concerned with the prevention of infectious disease, would be responsible for the medical inspection of all the children. On the other hand, the Public Assistance Authority, whose functions would be to provide medical treatment, would provide such treatment for all school children, so far as they require to be treated at the expense of the rates.

VACCINATION AND REGISTRATION OF BIRTHS, DEATHS, AND MARRIAGES.

The Commissioners recommend that the duties of boards of guardians in relation to vaccination and registration should be handed over to committees of county and borough councils dealing with kindred matters. They point out that these duties are altogether extraneous to the work of public assistance. These suggestions will meet with less opposition and adverse criticism than many others. It has long been contended that the administration of the Vaccination Acts by Poor Law guardians is an anomaly. Whatever becomes of boards of guardians in the legislative measures which it is to be supposed will follow the issue of this report, the administration of these important matters will now almost certainly be undertaken by the authorities more intimately concerned. In the case of vaccination it cannot be doubted that the public health department is that upon which the duties of administration naturally devolve. It is certain also that benefit would follow the change, inasmuch as the public would be more favourably impressed by measures of preventive medicine controlled and regulated by the properly constituted health authority.

The Commissioners have drawn up a list of complaints against the Poor Law system, which they describe as the leading defects of the system. Clause IV of the summary of these defects refers to "The lack of intelligent uniformity in the application of principles and in general administration." The manner in which guardians have carried out their duties in relation to vaccination gives strong support to this view of the Commissioners. Absence of intelligent uniformity was a marked feature quite recently when the question of the remuneration of public vaccinators was considered by guardians throughout the country. The result is variation amounting in many instances from 50 to 100 per cent. in the fees paid for precisely the same work under similar conditions. The removal of the administration of vaccination to a committee not concerned with Poor Law relief or "public assistance" will prevent the future use of vaccination fees as an excuse for and set-off against absurdly inadequate payment for medical services to the necessitous poor.

Regarding the registration of births, deaths, and marriages, the Commissioners state that the Registrar-General considers that a closer relation between the sanitary and registration districts is highly desirable. Every one with any knowledge of the subject will agree with this. Registration districts should be coterminous with sanitary areas. The duties of guardians in connexion with registration are very limited. They simply appoint and pay the officers. Thus the duty is largely one of patronage. The suggested change will make the returns more useful for comparative statistics. The better selection of suitable officers for the work is another advantage which the change is calculated to effect, for mere personal and local influences would be less in evidence. In both these instances the desirability of the suggested change does not depend merely on the manner in which the duties have hitherto been performed by the guardians. Time was when the Poor Law guardians had among their duties the suppression of nuisances, the administration of sanitary measures, and the treatment of infectious diseases. The changes contemplated in regard to vaccination and registration are in natural sequence and are demanded by the same considerations which brought about the previous alterations. A public assistance authority for each county or county borough taking over the present duties of boards of guardians will not be weakened in any way by the transference of vaccination and registration to their proper spheres.

INFANT MORTALITY IN POOR LAW INSTITUTIONS.

It will come as a surprise to most persons to learn that more than 8,000 children are born every year in Poor Law institutions and remain for a shorter or longer time as inmates. Up to the year 1907 no accurate information on the death-rate of these infants was forthcoming. It was perhaps assumed that if the maternal mortality were not excessive that of the infants would follow the same law. This hypothesis has been tested by a private inquiry instituted by a member of the Commission. Forms were sent out to all the unions in England and Wales, and 450 of these gave a voluntary response. They did so in perfect good faith, and it would be manifestly unfair to single out from these returns any particular institution for either praise or blame, but the total figures which are given in the Minority Report, when classified after the manner of the Registrar-General for the population at large, throw a light on the condition of the children in these places that is both unexpected and unwelcome. We have not discovered any mention of these returns in the Majority Report, but until an index has been published it is a little

[1] Thirty-sixth Annual Report of Local Government Board, 1906-7, pp. cxxiii-v.

difficult to prove the negative; independent investigations have, however, led us to a reluctant acquiescence in the truth of at least the general statements made, which are of a nature to call for immediate action on the part of every right-minded person, no matter what political or other views he may hold as to the general question of Poor Law reform.

The scope of the inquiry is indicated by the remarks in the Minority Report (p. 781):

We were, therefore, interested in the mortality statistics of the 8,483 infants who were born during 1907 in the workhouses of the 450 unions responding to the inquiry made by one of our members. Out of these 8,483 infants no fewer than 1,050 actually died on the premises before attaining 1 year. The Registrar-General, as is well known, gives, for the whole population, the number of babies, out of every 1,000 born, who die before the expiration of certain days, weeks, and months of the first year of life. Similarly, there has been worked out for these 8,483 babies born in 450 of the Poor Law institutions in England and Wales during 1907, taking only the deaths actually occurring in the institutions, the proportion dying within corresponding periods of their first year—making the assumption, for the purpose of comparison of death-rates, that those who left the workhouse within the year had a death-rate equal to those remaining in the institution.

The shorter table gives the result at a glance.

TABLE II.—*Infantile Deaths out of every 1,000 born.*

Ages at Death.	Workhouses outside London.		London Workhouses.		England and Wales, 1906.	London,* 1906.
	Legitimate.	Illegitimate.	Legitimate.	Illegitimate.	Legit. and Illegit.	Legit. and Illegit.
Under 1 month ...	72.6	78.2	85.5	66.7	41.9	37.0
1 to 3 months ...	72.8	85.9	57.1	116.2	25.7	24.6
3 to 6 " ...	76.8	56.4	70.9	107.6	27.0	27.3
6 to 9 " ...	30.8	28.7	48.9	72.2	20.8	21.7
9 to 12 " ...	58.7	19.4	57.2	29.3	17.1	19.3
	311.7	268 6	319.6	392.0	132.5	129.9
Number of infants on whose experience from birth the above rates are based.	1,479	4,421	1,002	1,581		

This result appears to us somewhat startling. The infantile mortality in the population as a whole, exposed to all dangers of inadequate medical attendance and nursing, lack of sufficient food, warmth, and care, and parental ignorance and neglect, is admittedly excessive. The corresponding mortality among the infants in the Poor Law institutions, where all these dangers may be supposed to be absent, is *between two and three times as great*. Out of every 1,000 babies born in the population at large, 25 die within a week and 132 are dead by the end of the first year. For every 1,000 children born in the Poor Law institutions, 40 or 45 die within a week, and, assuming the mortality among those who are discharged to be the same as those remaining, no fewer than 268 or 392 will be found to have died by the end of the year, the number varying according to whether we take the experience of the Poor Law institutions for legitimates or for illegitimates, in the metropolis or elsewhere.

In the very few Scottish and Irish workhouses that gave returns, the mortality was, on the whole, greater than in England and Wales. It is interesting to compare these figures with those of other institutions in which women are delivered. On this subject the report states:

We have not been able to obtain exactly corresponding statistics for the infants born in voluntary maternity hospitals. But their annual reports give the total number of births and infantile deaths within the institution, and the stay in those of the metropolis is so very generally a fortnight, that these statistics may be compared roughly with the deaths in the Poor Law institutions during that period after birth. The proportion of infantile deaths to the births during 1907 was, in the City of London Lying-in Hospital, 20,49 per 1,000; in the East End Mothers' Home, 21.07 per 1,000; in the Queen Charlotte's Lying-in Hospital, 26.1 per 1,000; and in the General Lying-in Hospital, 59.3 per 1,000; or, taken together, out of 3,414 births, 30 per 1,000—to be compared with the 46 to 53 per 1,000 recorded of the Poor Law institutions as a whole. In the well-known Rotunda Hospital at Dublin, out of 2,262 births in 1906, there died in hospital only 30 infants; in 1907, out of 2,318, only 21 infants. The usual stay in hospital is, however, apparently only seven days, so that the extraordinarily small proportion of infantile deaths—13, or 9 per 1,000—must be compared with the 25 per 1,000 for England and Wales, and the 40.1 to 44.9 per 1,000 of the workhouses for the first week.

A still more interesting comparison is to be found in the death-rate of infants born in their own homes, even in a very poor district. No one can claim that West Ham is an ideal residence. Yet the report says:

One of our members obtained, for the purposes of comparison, exact statistics of all the babies born during the same year (1907) under the care of the Plaistow Maternity Charity, an organization for providing gratuitous midwifery attendance at birth, and for the first fortnight afterwards, *in the mother's own home*, in one of the most poverty-stricken districts of West Ham.

Statistics were thus obtained for no fewer than 3,005 infants, all of them born in households having incomes of no more than 21s. a week. Of these, there died within the first fortnight only 47, or 15.33 per 1,000 births. In the four large voluntary maternity hospitals in the metropolis of which we have statistics the infantile mortality taken together was, for the first fortnight, 30 per 1,000 births. This, too, was nearly the infantile death-rate for the first fortnight among the whole population (namely, 31.1). In the Poor Law institutions of the metropolis the corresponding death-rate was, among legitimate children, 47.2, and among illegitimate children 46.1 per 1,000 births. In the Poor Law institutions outside the metropolis the corresponding death-rate was, among legitimate children, 51.2, and among illegitimate children 53.6 per 1,000 births. The 3,000 infants attended to in their homes, poor and wretched as were these homes, by the competent nurses of the Plaistow Maternity Charity had therefore a death-rate, during the first fortnight after birth, considerably less than that in the most successful of the voluntary hospitals, and less than a third of that in the Poor Law institutions.

To return to the table we note in the first instance:

It is interesting to observe that these heavy infantile death-rates in the Poor Law institutions do not seem to bear any exact relation to legitimacy or illegitimacy. Taking particular ages or particular districts, the death-rate among illegitimate infants is sometimes below and sometimes above that for legitimate children. . . . The variations in this respect as between the different ages, whether in London or elsewhere, are apparently quite without connexion with legitimacy. It would seem as if the protection and food enjoyed by the infants in the workhouse, legitimate and illegitimate alike, removed the presumption against the survival of illegitimate infants.

Certain further considerations are mentioned which begin to give some idea of the cause of this high mortality.

Equally interesting is it to notice that the excess of infantile mortality in the Poor Law institutions is actually greater at the ages between 1 and 6 months than during the first month of life. Whatever allowance should be made for the fact that the Poor Law institutions received many cases in which the mother has been exposed to adverse conditions, it is impossible to avoid the conclusion that the arrangements of the workhouse nurseries—to which Dr. Fuller so pointedly drew our attention—need serious examination.

This inference seems to receive some confirmation from the fact that the excessive infantile mortality in the Poor Law institutions is not universal; and that some have apparently a much higher death-rate than others. We do not wish to attribute too much importance to the statistics of particular institutions for so short a period as one year; but it cannot be right that there should be workhouses in which 40 per cent. of the babies die within the year. When we find that out of the 493 infants born in 10 workhouses (having each not fewer than 20 births in the year) there were only 14 deaths in the year, or 3 per cent., whereas out of the 333 infants born in 10 other workhouses (having each not fewer than 20 births in the year) there were as many as 114 deaths, or 33 per cent., we think it is high time for systematic inquiry.

Personal inspection of certain workhouses served to emphasize these remarks. In some unions the conditions can be fairly described as very good; in others the conditions are not such as would be tolerated under any effective system of supervision.

If the children succeed in passing the first twenty-one days of life, the conditions under which they are placed become in too many instances worse instead of better.

We regret to report that these workhouse nurseries are, in a large number of cases—alike in structural arrangements, equipment, organization, and staffing—wholly unsuited to the healthy rearing of infants. It is in vain that the Local Government Board has for more than a decade laid it down that: "In every workhouse where there are several children too young to attend school a separate nursery, dry, spacious, light, and well ventilated, should be provided. . . . In no case should the care of young children be entrusted to infirm or weak-minded inmates. . . . Unless young children are placed under responsible supervision they cannot be said to be properly taken care of." The boards of guardians have not obeyed. . . . We have visited many workhouse nurseries in the different parts of the kingdom, and we have found hardly any

can possibly be regarded as satisfactory places in which children should be reared.

Pauper imbeciles cannot be said to be proper guardians for young children, and even paupers who are not imbeciles are not the persons that any one except a Government authority would choose for this purpose. When to this is added the primitive nature of the sanitary appliances, and the usual absence of any quarantine arrangements for infants entering from outside, it is not surprising that epidemic disorders are sometimes officially described as "very troublesome."

And, finally, the report states:

> In the great palatial establishments of London and other large towns, we were shocked to discover that the infants in the nursery *seldom or never got into the open air*. We found the nursery frequently in the third or fourth story of a gigantic block, often without balconies, whence the only means of access, even to the workhouse yard, was a lengthy flight of stone steps, down which it was impossible to wheel a baby carriage of any kind. There was no staff of nurses adequate to carrying fifty or sixty infants out for an airing. In some of these workhouses it was frankly admitted that the babies never left their own quarters (and the stench that we have described), and never got into the open air, during the whole period of their residence in the workhouse nursery.

It is not surprising that infants brought up in such surroundings should show a high rate of mortality. This of itself is sufficient to any medical man to indicate the serious loss to the community that follows such arrangements. But if it is necessary to instruct the lay person, to whom the death of infants may seem a small matter,* the remarks on p. 777 may be quoted:

> "The infantile mortality question," says a high medical expert, "is one, therefore, of extreme importance . . . in regard to the physique of the nation. While thousands perish outright, hundreds of thousands who worry through are injured in the hard struggle for existence, and grow up weaklings, physical and mental degenerates. *A high infantile mortality-rate, therefore, denotes a far higher infantile deterioration-rate*, and this unwelcome fact must not be lost sight of."

There can, therefore, be no doubt as to the necessity for ending such a state of affairs. The problem of thorough and complete reform is too complicated and difficult to be discussed in an offhand manner. It may be that it is further inquiry will show that it is not possible to herd children in a wholesale manner in any nursery no matter how well managed. But the immediate remedy for the worst of the abuses disclosed is not difficult to find. Medical men do not need to be told that if children are cooped up together, without fresh air, proper food, proper sanitation, and efficient supervision, that the results will be bad. It should not be impossible, pending the radical cure of the present disorders, to bring the local authorities to a sense of their duties even in the face of the obstinately self-satisfied attitude of the boards of guardians and the cheerful optimism of the official stepfather at the Local Government Board.

MEDICAL MEN AND THE LAW OF RATING.

Elsewhere we deal with the situation which has arisen at East Ham as a result of the action of the local rating authorities in increasing the valuations of nearly all the houses occupied by medical practitioners in the borough. In view of the importance of the matter to members of the profession, we believe that a brief statement of the principles of the law of rating, so far as they affect the assessment of practitioners' houses, will be of interest at the present time. For a more comprehensive exposition of the law reference may be made to the excellent treatise of Mr. W. C. Ryde on the *Law and Practice of Rating*, to which work we are indebted for many of the statements that appear in this article.

The Union Assessment Committee Act, 1862, provides for the making by the overseers of every parish of a list of rateable hereditaments in the parish, together with the gross estimated rental and the rateable value of each hereditament. By gross estimated rental is meant "the rent at which the hereditament might reasonably be expected to let from year to year, free of all usual tenant's rates and taxes, and tithe commutation rate charge, if any. . . ." The net annual (or rateable) value is defined by the Parochial Assessments Act, 1836, and is, in effect, the gross estimated rental, less the "probable average annual cost of the repairs, insurance, and other expenses, if any, necessary to maintain" the hereditament "in a state to command such rent."

The amount on which any person is liable to pay rates depends on the rateable value of the property occupied by him, and, therefore, it is of the utmost importance to a ratepayer to see that the rateable value inserted by the overseers in the valuation list is not excessive.

From the above definitions it is manifest that in estimating the rateable value the overseers have to consider the rent at which the property may be expected to let from year to year. They are to have regard not only to the rent which an actual tenant may be paying, but also to the rent which a hypothetical tenant may be expected to be willing to pay. The term "rack rent," which is not found in the Rating Acts but is a convenient expression taken from the Income Tax Acts, will be used in this article to indicate this full or maximum yearly rent which a hypothetical tenant may be expected to be willing to pay. The rent which is actually being paid by a tenant for a short term frequently amounts to a rack rent, and if known to the overseers usually forms the basis of the calculation of rateable value. Actual rent is, however, not necessarily the measure of rateable value, because such rent may have been fixed a considerable time before the making of the rate, and the value of the property may have increased or diminished in the interval, or, for various reasons, as, for instance, a personal relation between lessor or lessee, or the payment of a premium, the rent may never have represented the full letting value of the property. Speaking generally, it may be stated that if a rent payable under a yearly tenancy has been fixed recently, without payment of any fine or premium, such rent is prima facie, but not conclusive, evidence of value.

Where there is no tenancy—that is, where a person occupies his own house—the rule for fixing the rateable value is the same, but as no rent is being paid, other evidence has to be relied on. This evidence may take various forms, such as the amount of a previous rent, the price paid for the property, a comparison of the property with similar properties situate in the same neighbourhood, etc. None of these would be conclusive, but they would be factors which might properly be taken into consideration in estimating the rent which the hypothetical tenant might be expected to be willing to pay.

It has been held that property must be valued as it exists at the time when the rate is made, with all the then existing circumstances. This point is very important. In *R. v. Grand Junction Railway Company*, Lord Denman said: "The house must be valued as it stands, a dwelling-house must be valued as such, and not at the higher value which it would possess if converted into a shop; and the supposition of a tenancy is only a mode of ascertaining the existing value to the existing occupier."

The next question for consideration—a question which has been very prominent at East Ham—is whether the houses occupied by professional men, or, for the purposes of this article, by medical practitioners, are to be valued simply as private houses, or are to be assessed as business premises. As a general rule, premises which are used for trade purposes command higher rents than similar buildings which are occupied simply as private houses, the obvious reason being that the profit which a trader expects to make by carrying on his business in a particular building is a factor in determining the amount of rent he can afford to pay. How far, then, is the rateable value of premises to be measured by the amount of profit made by the occupier? Mr. Ryde points out that in no part of the law of rating has there been more confusion than in dealing with this question. "Great part of the difficulty will disappear if it be remembered that the ascertainment of rateable value depends upon the construction of a statutory definition, and that the precise words of that definition must be the sole criterion." Now the definition of rateable value, which has been quoted in this article, makes rent, and not profit, the measure of value. The word "profit" does not appear in the definition, and, therefore, it is clear that rateable value is not measured by profit.

* This statement was actually made by a person of some scientific standing.

It is, however, equally clear that the amount of profit which a tenant expects to make, or, in the case of a continuing tenancy, the amount which he has already made, may affect the rent which he is prepared to give for a house. If the occupation of a particular house is necessary in order to enable him to make, or to continue to make, a given amount of profit, this profit will affect to a very material extent the rent he is willing to pay. If, on the other hand, there are a considerable number of houses almost equally well suited for his purpose, he will be inclined to pay little or no more rent for a particular house than a person who wishes to occupy it merely as a private residence. Mr. Ryde considers that "if the profits depend upon the personal skill of the tenant, and can be made in any other premises quite as well as in the premises in question, then the expected amount of the profits will not affect the rent that tenant will give. But if the profits can be earned only on the premises to be rated, and can be earned there by any ordinary tenant, then the expected amount of the profits will affect, and affect very materially, the rent which a tenant will be willing to give." He submits that the true rule is as follows: "As a matter of law, profits must be regarded as affecting rateable value, just so far as those profits would, as a matter of fact, affect the rent which may reasonably be expected."

The principles laid down in the foregoing statements may now be applied more directly to the assessment of medical practitioners' houses. In valuing these it is clear that the overseers and the Assessment Committee have to apply themselves solely to the question, For what rent may the property be expected to let from year to year in its existing condition? The production of a lease or agreement of recent date showing the actual rent paid is ordinarily the best answer the practitioner can give to this question. If there are no special clauses in the lease, if the value of the property has not altered materially since the rent was fixed, if no premium was paid on the granting of the lease, and if the lessor and lessee were at arm's-length when making the bargain, the rent is a rack rent, and would generally speaking be accepted as representing the gross estimated rental. If these conditions are not present, the rating authorities may properly decline to take the rent as conclusive and may require other evidence of value. But what is the exact bearing of the words "in its existing condition"? It may be argued that in its existing condition the house is a house occupied by a medical practitioner, and therefore that the use to which he puts the house—and, incidentally, the profit he makes therein—are factors to be considered by the rating authorities as affecting the value. This contention—which is the real point at issue at East Ham—admits of a twofold answer. In the first place, the profits of a medical practitioner depend upon his personal skill, and can be made in most houses of a convenient size in a given neighbourhood. It may therefore be asserted with confidence that the profits he expects to make do not materially affect the rent he will give for his house. But, secondly, even if the profits do affect the rent which he is prepared to give to some small but appreciable extent, still the rating authorities have neither cause nor power to go behind the rent, provided always that it is really a rack-rent. Any special value which the particular premises may possess for the purposes of profit-making has had its effect in determining the rent which the practitioner will be willing to pay; that special value, therefore, is included in the rent, and nothing further can be added thereto by reference to possible profits. This, it is submitted, is the state of the existing law. So far as we are aware, there are no reported cases which decide the exact point at issue with regard to a medical practice.

When the rent at which a house may be expected to let from year to year has been determined, the "gross estimated rental," one of the two values to be inserted in the valuation list, has been ascertained. The rateable value, upon which the rates, are actually levied, remains to be calculated. This calculation, however, is a relatively simple process. It is made by deducting from the gross estimated rental the "average annual cost of repairs, insurance, etc." It is not the practice of the overseers to enter into an inquiry as to the actual sums spent on repairing a particular property. The deduction is usually made according to a settled scale, which varies to some extent in different parts of the country. A common allowance is one-sixth of the gross estimated rental for larger houses and one-fifth for smaller properties. In London, the scale of maximum deductions is fixed by statute, and is as follows:

If the gross value is under £20—one-fourth If the gross value is under £20 and under £40—one-fifth If the gross value is £40 and upwards—one-sixth	Of the gross value.

Reference must now be made to the procedure under the Rating Acts, and particularly to the method of preferring objections and appeals. The valuation list of a parish outside the metropolis—and the borough of East Ham is outside the metropolis—is corrected from time to time either by revaluing the whole of the property in the parish, or by making a supplemental list containing only new properties and properties which it is deemed necessary to revalue. There are no provisions for compulsory periodical revaluations, and in some rural districts the same valuation has remained in force for many years.

The procedure in making a valuation list, or a supplemental valuation list, is as follows: The list is prepared by the overseers, and is deposited by them for not less than fourteen days with the rate books of the parish for inspection by the ratepayers, public notice of the deposit being given on the church doors. The list is then transmitted to the Assessment Committee (a committee of the guardians of the union in which the parish is situate) who revise it, hear any objections of which notice has been received, and correct the list as may be necessary. If any alterations are made the list is redeposited with the rate books for further inspection and objections, after which it is again returned to the Assessment Committee, who deal with the further objections and finally approve the list.

As soon as the list is deposited by the overseers every ratepayer has the right to inspect it and to take copies of or extracts from the list. Under Section 18 of the Union Assessment Committee Act, 1862, any person aggrieved is entitled to give notice of his objection, specifying the grounds thereof, within twenty-eight days after notice of deposit has been given. The Union Assessment Committee Amendment Act, 1864, however, empowers a ratepayer to give notice of objection "at any time," and not only within the twenty-eight days just referred to. The objection must be heard by the Assessment Committee at one of the meetings which they are required to hold for hearing objections to the valuation list. The objector need not appear in person, but may be represented by an agent.

If an aggrieved person fails to obtain relief from the Assessment Committee two courses are open to him: (1) He may appeal to special sessions, on giving twenty-one days' notice in writing previous to the sessions and stating the grounds of his appeal, and may appeal thence to quarter sessions. Appeals to special sessions may, however, be made only on the grounds of "inequality, unfairness, or incorrectness in valuation." (2) He may appeal direct to the next practicable quarter sessions on giving notice in writing twenty-one days previous to the commencement of the sessions, and specifying the grounds of appeal. The justices at quarter sessions have power, *inter alia*, to amend the assessment "in such a manner . . . as shall be necessary for giving relief," but they cannot increase the assessment of the person appealing. They may make such order as to costs as shall appear just and reasonable. The justices may give judgement absolutely, or subject to the opinion of the King's Bench Division of the High Court, on a special case to be stated by the sessions. A case is usually asked for during the hearing or immediately after judgement is given, and it is entirely within the discretion of the justices whether to grant it or not. An appeal lies by leave of the Court from the King's Bench Division to the Court of Appeal, and, apparently, thence to the House of Lords.

In connexion with any appeal to quarter sessions in which a point of law is involved, it is usually of importance to the appellant to have accurate information as to the principles on which the rating authority has acted in making or confirming the assessment which is the subject of the appeal. Accordingly, it may be useful to quote the provisions of the Union Assessment Committee Act, 1862,

as to the inspection of the minute books of the Assessment Committee. Section 11 of that Act runs as follows:

> The committee shall cause a minute of their proceedings . . . to be duly made from time to time in books to be provided for that purpose, which shall be kept by their clerk under their superintendence . . . and all such books shall at all seasonable times be open to the inspection of every person rated to the relief of the poor in any parish or place in the union, without any fee being demanded for such inspection; and all such persons shall be entitled at all seasonable times to take copies or extracts from the said books, without paying any fee for the same; and if, on request made for that purpose, the clerk of the committee refuse to permit any such person to inspect any such books, or to take copies or extracts therefrom, as aforesaid, such clerk shall for every such offence be liable to a penalty not exceeding five pounds, upon a summary conviction for the same before two justices of the peace.

The system in force within the metropolitan area differs considerably from that applicable to the rest of England and Wales, but can be referred to here only in the briefest manner. Within the metropolis a revaluation of all property is made quinquennially, in accordance with the provisions of the Valuation (Metropolis) Act, 1869. The last revaluation was made in 1905, and the new valuation list came into force on April 1st, 1906. Another revaluation will consequently be made in 1910. The current valuation list is subject to revision in years which are not years of revaluation in case of "alterations in any of the matters stated in the valuation list." The procedure for objections and appeals resembles that applicable to the rest of the country, but differs on points of detail.

The foregoing outline of the law and procedure will be sufficient to convey to the reader a general idea of the measure of liability for rating purposes, and of the course to be followed in order to obtain relief from excessive charges. It should, however, be observed that if an appeal to quarter sessions is determined upon (and sometimes if it is intended to prefer an objection to the Assessment Committee), it is, as a rule, desirable to seek legal assistance.

LITERARY NOTES.

THE Walter Scott Publishing Company, Limited, is about to issue a new and enlarged fifth edition of Dr. Albert Moll's work on hypnotism in their "Contemporary Science" Series.

The Oxford University Press has nearly ready *Experimental Embryology*, by J. W. Jenkinson, M.A., D.Sc., Lecturer in Embryology in the University of Oxford. The author deals with the origin of form, and in particular with its origin in the individual. The book is abundantly illustrated.

In connexion with the Poe Centenary, the Oxford University Press is issuing Edgar Allen Poe's Poems and Critical Essays in the Oxford Press series. The volume has been edited by Mr. R. Brimley Johnson, who contributes a life of the poet.

The first number of a new quarterly periodical entitled the *Eugenics Review* will appear on April 15th. It will be published under the auspices of the Eugenics Education Society. The review is said to have for its purpose to give expression to the eugenic movement, to place eugenic thought, when possible, on a strictly scientific basis, and to impress on all classes the dignity, privileges, and duties of parenthood. The society endeavours to secure authoritative treatment of eugenic questions. Its honorary president is Mr. Francis Galton, F.R.S., who initiated the science of eugenics, defined its principles, and started and endowed the Eugenics Laboratory of the University of London. The *Eugenics Review* will comprise amongst other things: (1) Articles by responsible writers. (2) Editorial notes upon such of the topics of the day as illustrate eugenic teaching and demand eugenic comment. (3) Notices of recent books which bear upon eugenics. (4) Official records of the work of the society. The aim of the *Review* will be to make known the results of all seriously-conducted eugenic investigation without bias in favour of any particular school. Its range will include—biology, in so far as it is concerned with heredity and selection; anthropology, in so far as it throws light on questions of race and the institution of marriage; politics, in so far as it bears on parenthood in its relation to civic worth; ethics, in so far as it promotes ideals that lead to the improvement of racial quality; religion, in so far as it strengthens and sanctifies the sense of eugenic duty. The *Review* will be published at the offices of the society, 6, York Buildings, Adelphi, London.

In the February number of *Travel and Exploration* Dr. C. G. Seligmann relates his experiences among the Veddas of Ceylon, one of the few existing wild peoples of India, who probably represent the remains of the original primitive South Indian stock of short jungle men who led a wandering life. Their attitude towards death is remarkable. Although there is no clearly formulated idea of a death contagion, the rapidity with which all Veddas leave the place where a death has occurred and avoid it for years shows that some evil quality is associated with dissolution. According to most Veddas, the spirit of every dead man, woman, or child becomes a "yaka" (plural "yaku") within a few days after death. Some Veddas, however, say that when ordinary folk die they cease utterly, and that a surviving part, which becomes a yaka, exists only in the case of especially strong, energetic, or skilled men who have shown their strength of character in this world, or who have had the power of calling the yaku during their lifetime. Since each Vedda community consists of a small number of families, usually related by blood and marriage, the yaku of the recent dead—called collectively the Ne Yaku—are supposed to stand towards the surviving members of the group in the light of friends and relatives, and only if neglected will show their disgust and anger by withdrawing their assistance or even becoming actively hostile. Hence, it is generally considered necessary to present an offering to the newly dead, usually within a week or two of death. This offering must consist of cooked rice and cocoanut milk, the food that every Vedda esteems above all others, but betel leaves and areca nuts are often added. In each community there is one man, called "kapurale," or "dugganawa," who has the power and knowledge requisite to call the yaku, and this man calls upon the yaka of the recently dead man to come and take the offering. The yaka comes, and the kapurale becomes possessed by the yaka of the dead man, who speaks through his mouth in hoarse, guttural accents, stating that he approves the offering, and will assist his kinsfolk in hunting, and often definitely indicating the direction in which the next hunting party should go. One or more of the near relatives may also become possessed, but this is not necessary. Soon after the spirit leaves the kapurale the rice is eaten by the assembled folk, usually, but not necessarily, on the spot where the offering was made. This account represents the simplest, and probably a degenerate form of death ceremony, but usually the matter is complicated by the invocation of certain other spirits besides the Ne Yaku.

Messrs. John Wright and Sons, of Bristol, will publish on March 7th, a work entitled *Health Morals and Longevity*, by Drs. George Gresswell and Albert Gresswell, of Louth. In the preface it is stated that the book is put forth merely as a sketch of the important subject dealt with—healthy and vigorous life, how best to ensure and maintain it, a mysterious problem bristling at every point with well-nigh baffling questions. In regard to these the authors have tried to give what may be said on various sides, to throw some additional light, and present some fresh points of view.

In a recent number of the *Archives Provinciales de Chirurgie*, the editor, Dr. Marcel Baudoin, gives an extract from a document in the Bibliothèque Nationale of Paris (M.S. fr. 17187, fo. 321), relating to an exploratory laparotomy performed in 1475 on a criminal condemned to be hanged on the gibbet at Montfaucon. He had suffered from pain in the side, stone, colic, *passio iliaca*, etc., and the King's physicians asked permission to open his belly in order to discover the exact state of things. The leave was granted, and the operation is described as follows:

> Laquelle ouverture et incision fut faicte et dedans icelluy quis et regardé. . . . Et aprèz qu'ilz eulrent ésté vues fut recousu, et ses entrailles remisses dedans. Et fut par l'ordonnance du Roy faict très bien penser, et tellement que, dedans XV jours aprèz, il fut bien guéry et eult rémission de ses cas, sans despens, et si luy fut donné avecque argent.
>
> [The which opening and incision were made and the parts within were inspected and looked at. . . . And after they had been seen, he was stitched up again and the guts replaced within him. And by order of the King he was very well dressed, so that within fifteen days after, he was well healed, and obtained remission of his sentence, together with a sum of money.]

It is not stated whether the man's consent was asked and a free pardon promised in case he survived, but one may hope this was the case. At any rate, we suppose the physicians would be forgiven by antivivisectionists, as there is no evidence that they made experiments on any animal other than this condemned man.

Medical News.

THE Russian Government has decided to establish a new university at Saratoff, and the duty of organizing it has been entrusted to Dr. Rasumowsky, Professor of Surgery at Kasan.

THE late Dr. Charles E. Beevor, of London, President of the Neurological Society, left estate of the gross value of £41,439 16s. 2d., of which the net personality was sworn at £41,037 10s. 1d.

WE learn from the *British Journal of Nursing* that the Right Hon. R. B. Haldane, Secretary of State for War, will address the International Congress of Nurses, which is to be held in London in July next, on the nurse as patriot.

WE regret that from the list of specially-invited guests who were present at the Hunterian Oration delivered at the Royal College of Surgeons of England on February 15th the name of Sir Richard Havelock Charles, K.C.V.O., was inadvertently omitted.

MR. LEONARD MATHESON has been elected president, Mr. A. Clayton Woodhouse and Dr. Edward Bogue (New York) vice-presidents, and Mr. Douglas P. Gabell one of the honorary secretaries, of the Odontological Section of the Royal Society of Medicine.

THE Court of Appeal, on February 22nd, upheld the decision of Mr. Justice Joyce, given in July last, that the legacy of £25,000 left by the late Mr. Alfred Beit to the Institute of Medical Sciences Fund, University of London, should be repaid to the executors of Mr. Beit.

THE annual debate before the Chelsea Clinical Society will be held at the Chelsea Dispensary, Manor Street, King's Road, S.W., on March 9th and 16th, at 8.30 p.m., the subject selected being the diagnosis and treatment of tuberculous glands in the neck.

AT the meeting of the Harveian Society of London to be held at Stafford Rooms, Tichborne Street, W., on Thursday next, at 8.30 p.m., a discussion on the early diagnosis and treatment of cancer of the stomach will be opened by Dr. W. Hale White and Mr. B. G. A. Moynihan.

THE Royal Sanitary Institute offers the Henry Saxon Snell prize for 1909 for an essay on the principles of heating and ventilating public buildings, with descriptive details and illustrations of the best systems. Particulars can be obtained on application to the Secretary, Margaret Street, London, W.

A SESSIONAL meeting of the Royal Sanitary Institute will be held at the Parkes Museum, Margaret Street, London, W., on Wednesday, March 3rd, at 8 p.m., when a discussion will be opened by Dr. D. A. Carruthers on the control of infectious diseases in schools. The chair will be taken by Mr. A. Wynter Blyth.

MESSRS. HARRY W. COX AND CO., 47, Gray's Inn Road, London, W.C., have issued a catalogue of *x*-ray, electrotherapeutic, and other apparatus. It contains useful notes on interruptors, charging accumulators, and other practical points, and a number of excellent skiagrams of pathological conditions.

THE National League for Physical Education and Improvement has arranged for a course of five lectures to be given on Thursday afternoons, at 3.30 p.m., at 56, Queen's Gate, by kind permission of Lady Samuelson. The first lecture will be given by Dr. F. E. Fremantle on Thursday next, the subject being the medical inspection of school children.

THE Orient Company will open their pleasure cruise season next month with the dispatch of their ss. *Ormuz* on a twenty-five days' cruise to Lisbon, Tangier, Palermo, Cattaro (for Cettinje), Gravosa (for Ragusa), Spalato, Syracuse, Malta, Port Empedocle (for Girgenti). An Easter cruise will be made to Greece, Constantinople, Asia Minor Sicily, Algeria, Gibraltar, and Portugal.

SIR RUBERT BOYCE, F.R.S., Dean of the Liverpool School of Tropical Medicine, has been invited by the Colonial Office to visit the West Indies for the purpose of looking into the present methods of dealing with sickness in those colonies, and recommending what reforms, if any, can be made with a view to promoting the physical welfare of the people in the Caribbean Islands. He will arrive at Barbados on March 2nd.

THE tax on all medicines containing alcohol has been raised by the Hungarian Government.

THE fifth meeting of the Departmental Committee appointed by the Lord President of the Council to consider the working of the Midwives Act was held on Wednesday, February 24th, at the Privy Council Office, Mr. Almeric FitzRoy presiding. The following witnesses attended and gave evidence: Dr. Hugh Woods, on behalf of the London and Counties Medical Protection Society; Miss Amy Hughes, on behalf of Queen Victoria's Jubilee Institution for Nurses; and Sir William J. Sinclair, M.D.

THE annual general meeting of the London Medical Graduates' College and Polyclinic will be held at the College, Chenies Street, on Monday next at 5 p.m. The annual report shows that there was a deficit on the working of the college in 1908, but that it had not been necessary to carry out the proposal to discontinue the college, owing to a generous offer from Sir Jonathan Hutchinson. The report refers with regret to the resignation from the office of medical superintendent by Captain Hayward Pinch, on his appointment to be director of the Radium Institute.

A BILL providing for the establishment of a Children's Bureau in the United States Department of the Interior has been introduced into the House of Representatives. Its duties will be to investigate and report upon all matters pertaining to the welfare of children and child life and especially the questions of infant mortality, the birth-rate, physical degeneracy, orphanage, juvenile delinquencies and juvenile courts, desertion and illegitimacy, dangerous occupations, accidents and diseases of children of the working classes, employment and legislation affecting children in the several States and territories, and such other facts as have a bearing upon the health, efficiency, character, and training of children. The chief of the bureau shall from time to time publish the results of these investigations. He is to be provided with a full staff of assistants, statistical experts, clerks, messengers, and special agents.

THE first annual dinner of the London School of Clinical Medicine was held at the Savoy Hotel, London, under the presidency of Mr. P. A. Nairne, Chairman of the Committee of the Seamen's Hospital Society, on February 19th. The Chairman, in proposing the toast of "The London School of Clinical Medicine," explained in detail how it came about that the Committee of the Seamen's Hospital, Greenwich, considered that it was the duty of the hospital to afford an opportunity to the medical men to continue their professional studies under the most favourable circumstances. It was felt that in doing this work the Committee was entitled to appeal to the public for funds to carry out the scheme. Sir William Bennett, who replied, said that the plan was not a doctors' scheme to benefit doctors, but was instituted for the good of the public, as all post-graduate schemes should be. The addition to the facilities for post-graduate teaching was demanded, for, in spite of the institutions previously established, such facilities were defective. The London School of Clinical Medicine had now been in existence for nearly three years, and had had about 300 students, and, from a financial point of view, was almost paying its own way. The school was not instituted in any way for the purpose of rivalling any other similar institution; in fact, the work of the school might be described as complemental to other teaching centres for post-graduates. Dr. Guthrie Rankin, who proposed the toast of "The Guests," said that the hospital was devoted to the relief of seamen, and that gave the school a special claim upon the sympathies of the public. For that reason also it could be claimed that the school was in some degree a national asset, so that the appeal for public assistance was well founded. Lord Ridley, in replying, said that the school was a value to the profession, and thereby of service to the public. Sir William Church, who also responded, explained that it was impossible for the ordinary medical schools to teach students the kind of work in which post-graduate schools were well fitted to give instruction. The hospitals with medical schools attached were always glad to see their old students visiting them again, but post-graduate schools were now accepted as a necessity in the education of medical men. Sir Malcolm Morris, in proposing the toast of "The Chairman," said that one object of the meeting was to bring before the public the enormous importance of post-graduate teaching from the point of view of the interests of the public, and Mr. Nairne in acknowledging the toast mentioned that though it was quite true that old students were welcomed back to the wards, nevertheless that was not quite the same thing as the instruction they received at a post-graduate school, for it was evident that the post-graduate student at an ordinary medical school was in the nature of things apt to be crowded out.

British Medical Journal.

SATURDAY, FEBRUARY 27th, 1909.

MEDICAL PRACTITIONERS AND LOCAL RATES.

Members of the medical profession practising in East Ham are up in arms at what has the appearance of arbitrary action on the part of the local rating authorities. East Ham is one of the less wealthy districts immediately outside the metropolitan area. The financial position of the borough at the present time is distinctly, if not singularly, unfortunate. The rates have already reached a high level, but, as is the case in many other towns, the expenditure for public purposes shows a constant tendency to increase. At the same time, it is stated that property generally is diminishing in value throughout the borough to such an extent that it is becoming increasingly difficult to let houses, even at considerably reduced rents. It is said that there are a large number of unoccupied houses, and that these tend to remain vacant for considerable periods. This appears to have been the state of affairs last autumn, when the borough council had to consider how best to meet the growing demands upon them in the immediate future. Two alternative courses presented themselves. One was to increase still further the rate in the pound of the existing levy, with the knowledge that a public outcry against the high rates was almost certain to be raised. The other was to increase the valuations of certain properties, and in this way to render a given pound rate more productive of revenue. The authorities at East Ham adopted the latter plan, and accordingly a supplemental valuation list was prepared by the overseers in August, and approved by the Assessment Committee in October, 1908.

Now it is obvious that if all classes of property are valued on a common basis, so that the occupier of every rateable subject bears a fair share of the aggregate burden, the effect of a general revaluation is small, as far as the total amount of the rates payable on any particular hereditament is concerned. But if the members of a particular class or profession are singled out for attack, and the assessments upon their houses are raised while those upon other properties are left untouched, the distribution of the total burden is altered, and the action of the authorities calls for the immediate attention of that section of the ratepayers which is adversely affected. The information we have received goes to show that at East Ham the houses of members of the medical profession have been selected for the special attention of the rating authorities, for it is asserted that the valuations of doctors' houses have been raised, while those of other residential premises and of shops in the same streets have been left undisturbed. We understand that there are some forty members of the medical profession practising at East Ham, and that more than three-fourths of these lately received the unpleasant intimation that the ratings on their houses have been increased. The amount of the increase of course varies in different cases, but in some instances the ratings are said to have been doubled. The importance of the matter, however, is due not to the amount in dispute but to the principle involved. There is no reason to suppose that the houses of medical practitioners have hitherto been generally undervalued, as compared with houses occupied by other classes of the community, and therefore it is difficult to discover any justification for the action of the overseers. In East Ham, as is well known, wealthy residents are conspicuous by their absence, and medical fees in the borough are, on an average, so low as to render the making of more than a very moderate income a practical impossibility. Indeed, the pecuniary reward to be derived from a medical practice in the borough is so extremely moderate compared with the value of the practitioner's services to the community that he may reasonably expect to receive considerate and sympathetic rather than harsh and arbitrary treatment at the hands of the local authorities.

The ostensible reason for the increased valuations is that it is contended that a doctor's house should be valued, not as a private residence, but as a house occupied for business purposes; and it is on this contention that the local members of the profession have joined issue with the rating authorities. The action of the latter may at first sight appear to be not altogether unreasonable, for a medical practitioner does unquestionably carry on his profession in or from his private residence, which may therefore be said to be his place of business. Moreover, in making his income-tax return, he is allowed to deduct from his gross profits the rent or rental value of so much of the premises as is used for professional purposes. Too much stress, however, must not be placed upon this parallel, for, under the Acts relating to another imperial tax—the inhabited house duty—the residences of medical practitioners are charged at the higher rates applicable to private houses, and not at the lower rates levied on shops and other trade premises. The action of the East Ham rating authorities accordingly requires further examination, seeing that a departure from long-standing practice is justified only when made for reasons whose weight and validity are fully established.

We print in another column an article dealing more particularly with the legal aspects of the question. We have there endeavoured to show that the profits which a medical practitioner expects to make in a particular house do not influence materially the rent he is prepared to pay, and we have asserted that, if this be so, his use of the premises for profit-making purposes is not a factor to be considered by the overseers in estimating the rateable value. We are here concerned mainly with more general considerations.

The situation which has arisen at East Ham is undoubtedly serious, and the question at issue is one of considerable importance to the medical profession at large. It is the common belief that the action of the overseers represents the beginning of a movement which has for its object the raising of the valuations of all houses to the doors of which brass plates are affixed. If this be true, architects, solicitors, and all other professions will be affected, as well as many people in more humble circumstances. Moreover, the question may, ere long, be raised in other places than East Ham. If no attempt be made to resist the alteration in the basis of assessment, other boroughs are pretty certain to follow the lead given them, with the result that the valuations of houses

occupied by professional men may be the subject of a general increase throughout the country. The evil would not stop even here. It is well known that the valuations for income tax, Schedule A, and for inhabited house duty are based to a considerable extent on the local assessments, and, therefore, an increase in the Poor Rate valuation would be followed sooner or later by an increase in the King's Taxes. Within the metropolitan area the same valuation is made to serve both for local and for imperial purposes, and an increase in Poor Rate assessment would there be accompanied by an automatic increase in the assessment for King's Taxes.

At East Ham there is a widespread opinion that if the higher valuations are maintained the saleable values of medical practices will be seriously affected. Local feeling is, therefore, strong, and has been thoroughly aroused. Individual members of the profession have objected to the assessments upon their houses, and in some instances they have already succeeded in obtaining redress. It is felt, however, that an organized movement is likely to be of greater and more permanent value than isolated efforts, and a "Medical Reassessment Association" has been formed with a view to concerted action. A number of meetings have been held, and legal advice has been obtained as to the steps which should be taken. Valuations of the houses of which the ratings have been increased have been made by an independent valuer. The aggregate of these valuations is stated to be only a few pounds in excess of the aggregate of the old assessments, and is far below the aggregate of the increased valuations made by the overseers and approved by the Assessment Committee. The result is therefore abundantly to justify medical men in the locality in the course they have determined upon.

A meeting to hear further objections to the valuation list was held at Leytonstone on February 19th, when the valuations of a number of doctors' houses were reduced, to the satisfaction of the applicants. In other cases the relief obtained is considered insufficient, while the hearing of several objections was adjourned to a meeting to be held on March 5th. It does not appear that the principle on which the opposition to the assessments is based was specifically admitted by the Assessment Committee. The different statements which have been made as to the exact lines on which the rating authorities have proceeded in making their valuations are, however, to some extent conflicting, and the Medical Reassessment Association would do well to depute one of its members who is a ratepayer to exercise his statutory right of inspecting the minute books of the Assessment Committee with the view of obtaining full and reliable information on this point.

It is considered likely that a test case will be taken to quarter sessions with a view to the determination of the point at issue. The cost of an unsuccessful appeal to quarter sessions is expected to be between £30 and £40, while, should the appeal succeed, the Assessment Committee would in all probability be ordered to pay the costs of both parties. A guarantee fund sufficient to cover the probable cost of a test case has been raised.

The importance of the principle which is at stake renders it in the highest degree desirable that the case which is to be the subject of the appeal to quarter sessions should be carefully selected, with a view of bringing clearly before the court the exact point at issue. The object should, of course, be not merely to obtain a reduction in the particular assessment on which the appeal is based, but also to secure a pronouncement that the local authorities have acted on an erroneous principle in making their revaluation. If this point can be established—and a reference to our article on the legal aspects of the question will show that there are good grounds for supposing that it can be established—a victory will be won which will be of lasting service to the medical profession at large. We congratulate the practitioners of East Ham on the public spirit they have shown, and wish them complete success in the fight that lies ahead.

SLEEP AND HYPNOTICS.

THIS, if one may judge from the number of cases of suicide attributed to want of sleep, and from the frequency with which the complaint is heard of sleeplessness in milder forms, is an age of insomnia. It is, we suppose, one of the symptoms of the neurasthenia which is too much with us. We are keenly aware that this explanation explains nothing; indeed, it is a case of *obscurum per obscurius*, for insomnia is a very definite thing, while neurasthenia is a pathological shadow. It is, however, useful for clinical purposes, as the term "Italy" was when Napoleon described it as not a country but a geographical expression. Dr. Farquharson, in the interesting paper which we publish this week, tells in simple language nearly all there is yet to be said about sleep. He thinks, and in our opinion rightly, that the physiological causes of sleep must differ, and he asks for information. Alas! we can find nothing newer than Landois's description of sleep as "the consumption of potential energy in "the nerves, principally in the central organs, which "renders restitution necessary. Perhaps accumula-"tion of decomposition-products in the body (lac-"tates) induces sleep." This really means that we sleep when we are weary, and carries us little further than Corin's knowledge that "the worse one sickens "the worse at ease he is," and the like elementary facts, which led Touchstone to call him a "natural philosopher."

We are, perhaps, rather in the habit of assuming that everything in this era of light is new, even our diseases. But insomnia, like neurasthenia, and its more formidable congener hysteria, must be almost as old as man. No one has described insomnia better than Shakespeare, who makes King Henry the Fourth, when he cannot lure that sleep "that knits up the "ravell'd sleave of care" to his pillow, exclaim:

> How many thousands of my poorest subjects
> Are at this hour asleep! O Sleep, O gentle Sleep,
> Nature's soft Nurse, how have I frightened thee,
> That thou no more wilt weigh my eyelids down
> And steep my senses in forgetfulness?
> Why rather, Sleep, liest thou in smoking cribs,
> Upon uneasy pallets stretching thee
> And hush'd with buzzing flies to thy slumber,
> Than in the perfum'd chambers of the great
> Under the canopies of costly state
> And lull'd with sound of sweetest melody.

But after all Dr. Farquharson is, perhaps like most of us, more interested in finding a remedy for the disorder than in discussing its causes and nature. We agree with him that the old advice to count imaginary sheep leaping through a gap and such like devices are of little avail in most cases. Reading is often successful, but the book must be judiciously chosen. It must not be so dull that it cannot be read at all; on the other hand it must not be exciting, or it will murder sleep as effectually as Macbeth. Sir Henry

Holland found poetry an admirable soporific; the particular form which served best for the purpose was in his case the sonnet. In other cases the epic is more efficacious. Lecky found comfort in rehearsing poetry which he had learnt by heart; and Döllinger in his old age committed some books of Homer to memory for the same purpose. But what is to be done when none of these things will relieve the maddening monotony of telling the weary footfalls of the hours through a long night? Here we come to a point where opinions and practice will differ, and where even practice may sometimes be divorced from opinion. Sir James Paget says that a person will sleep all the better for a night of wakefulness. But then he tells us that he had only had two sleepless nights in his life—and "he jests at scars that never felt a wound." And what if it be not one night, but several in succession with days of heavy work between?

Dr. Farquharson does not shirk the thorny question of hypnotics, and he frankly gives us his own experience. Modern science has placed in the hands of the physician a large number of sleep-compelling drugs, the effects of which have been carefully observed. A summary of recent work on this subject may be useful.

At the invitation of the Berlin Medical Association, Professors Thoms and Ziehen not long ago read papers on modern hypnotics, the former treating the subject from the standpoint of the pharmaceutical expert, and the latter from that of the clinician.[1] Professor Thoms stated that the study of chemical constitution and physiological action has materially advanced our knowledge in regard to hypnotics, and the continued study in this direction, controlled by clinical results, must bear good fruit. Brunton, he said, gives as the essentials for the onset of sleep: (1) That the flow of blood to the brain must be checked as much as possible, which can be attained either by deflecting the blood from this organ or by quieting the activity of the heart; and (2) that the functional activity of the brain must be diminished. It is well known that stimulating medicaments increase the blood pressure, whereas it is diminished by narcotics. Hans Meyer pointed out a curious fact relative to chemical substances which induce sleep. Narcotic substances are fat solvents, and experiments made by him had led him to the conclusion that all chemically indifferent substances which dissolve fats and fatlike substances must act narcotically on protoplasm. The action will be strongest on those cells, such as nerve cells, in which fatlike substances are contained. The comparative strength of the action of narcotics must be dependent on the mechanical affinity to fat-like substances on the one hand and to the other constituents, such as water, on the other. The coefficient of its distribution between fat and water was therefore proposed as an index of the narcotic activity. In discussing the actual chemical constitution of various hypnotics, he deals first with the group of substances containing one of the halogen elements, of which chloral and its derivative are the chief representatives. Chloral has been shown to owe its action to the reduction compound tri-chlor-ethyl alcohol. This body is paired with glycuronic acid, and is excreted in the urine as urochloric acid. An important division of this group is found in the halogen acid amides. Neuronal (di-ethyl-bromine-acetamide) and bromural (mono-bromine iso-valerianyl urea) probably owe their hypnotic action to the hydroxyl groups, though the bromine in both undoubtedly exercises a sedative effect. The second group consists of those narcotics whose hypnotic action is supposed to depend on an alkyl group; of these the first is ethyl alcohol, which is only hypnotic in large doses. Amylen hydrate (tertiary amyl alcohol) is the most interesting of this group, as it belongs to a series of methyl carbonol compounds. The tri-methyl carbonol is twice as weak as the dimethyl-ethyl carbonol or amylene hydrate, while the tri-ethyl carbonol has a still more powerful hypnotic effect. The next subdivision consists of the methan derivatives of the sulphones, and is represented by sulphonal, trional, and tetronal. Applying Meyer's theory to these compounds, it is found that the coefficient of trional is 4.46, that of tetronal 4.04, and that of sulphonal only 1.59. As a matter of fact, this proportion is approximately that of the hypnotic activity of the three substances. The third subdivision is that of the substituted carbonic acid amides. Urethan and hedonal owe their action, no doubt, to ethyl groups. The urea derivatives also come into this group, and of these di-ethyl malonyl urea (veronal) is a stronger hypnotic than the corresponding methyl compound, while in this group the maximum hypnotic activity appears to be possessed by the di-propyl compound which goes by the name of "proponal." The third great group consists of the aldehydes and ketones, of which paraldehyde and acetophenon (hypnon) are representatives. In these, again, the ethyl group plays an important part.

Professor Ziehen discussed the subject from a totally different standpoint. Regarding chemical medicaments as one means of inducing sleep in patients suffering from nervous affections, he analysed the conditions calling for the application of special drugs. He said that in certain cases of mild sleeplessness, sedatives were the best hypnotics, while in more severe disturbances, the selection of the proper drug must be determined by a consideration of several circumstances. Bromine given in the form of sodium bromide in doses of 30 grains for several days might eventually yield satisfactory results, and though it was necessary to exercise the virtue of patience, the feeling of safety often more than counterbalanced the slowness with which the effect was produced. In neurasthenia, especially when there was marked excitability, it was necessary to employ a stronger drug, and under these circumstances the choice lay between neuronal and bromural. The former acted more strongly than was accounted for by its bromine content. The ordinary dose of 15 grains might be increased safely up to 22½ grains. It did not seem to produce unpleasant subsidiary effects, a habit was not easily induced, and the drug did not readily lose its power. Bromural, the dose of which for an adult was 10 grains, was useful and its administration was rarely accompanied by disturbing secondary effects, and was particularly valuable in children. In neurasthenic insomnia the valerian preparations also were at times useful; hyoscin and duboisin acted promptly and powerfully when there was marked motor excitability, but neither was always well tolerated, and it is necessary to exercise care and to continue their use only in cases in which they proved to act well.

In spite of the great chemical difference between them, amylen hydrate and paraldehyde acted very similarly. Both were useful in practically all forms of sleeplessness. They acted rapidly, but the effect

[1] *Deut. med. Woch.*, April 2nd, 1908.

soon passed off, so that their chief value was in cases of nervous sleeplessness in which a prompt action was desired, and a delayed action would be likely to distress the patient. The dose of each was 40 to 60 grains. Both were certain in their action and practically free from danger, for, although he had used them largely, he had never met with any toxic effects. In one case a patient took 20 grams of paraldehyde by mistake (about 5 drachms), and awoke after eighteen hours' deep sleep, without having presented any threatening symptoms. Ziehen considered that chloral should be expunged from the list of hypnotics, its only advantage being its cheapness. Chloralamide was more useful; it did not act so well as veronal or trional, but was less dangerous, and did not engender a habit. He gave it in doses of from 45 to 60 grains. Isopral, though a very active drug, acting rapidly, was dangerous, as it had an injurious effect on the heart. Chloretone was a homologue of isopral, but Ziehen said that his experience with it was too limited to justify him in forming an opinion as to its value. Dormiol, on the other hand, was practically without bad effect on the heart, and was a good hypnotic, which might, he thought, well be used in alternation with other hypnotics. With regard to the group consisting of sulphonal, tetronal, and trional, Ziehen expressed the opinion that the two first named might be neglected, since sulphonal frequently produced serious subsidiary symptoms, and tetronal also was too dangerous for ordinary use. Trional produced a prolonged sleep, but the action often took a considerable time to develop; the plan of giving the drug some two or three hours before the sleep is desired might be successful, but as the interval between the taking of the drug and the falling to sleep varied even in the same individual, this method was impracticable. The dangers associated with the exhibition of trional were comparatively slight. It had no undesirable action on the heart. Haematoporphyrinuria and similar results which had been observed could be avoided by careful dosage. The combination of trional with paraldehyde, recommended by Pouchet, had great advantages, for the doses could be materially diminished, and the sleep, in response to the paraldehyde, set in rapidly and, thanks to the trional, lasted long. Ziehen next dealt at length with veronal, expressing himself as being very sceptical about the dangers of this drug, though admitting that unpleasant secondary effects were not uncommon. He usually gave 7½ grains to start with, and increased the dose, if necessary, to 15 or 22½ grains if the drug were well tolerated. Its action, however, might be delayed for a considerable time, amounting even to several hours, and, unlike trional, the delay could not be prevented by combining it with other hypnotics. Veronal often lost its power after it had been given for a time. He pointed out that when this had taken place, it was found that trional no longer acted well, and similarly when trional lost its effect, veronal no longer acted well. With regard to the urethan group, he said that he had not convinced himself of the therapeutic value of urethan itself, while hedonal given in doses of from 7½ grains, rising to 30 or even 45 grains, was useful at times. It was not so good a hypnotic as veronal or trional, but it did not lose its effect readily, and was more or less free from secondary consequences. Proponal had a more prompt action than veronal, was quite reliable and did not, like veronal, produce drowsiness during the day following the dose. Its chief disadvantage—a very serious one—was the narrow margin between a therapeutic and toxic dose; to give 7½ grains was to approach the danger zone, while from 5 to 6 grains was the hypnotic dose. Hypnone, according to Ziehen, had not proved useful, but he thought it still too early to speak positively about hypnal, viferrall and some others.

THE NEW ROYAL COMMISSION ON UNIVERSITY EDUCATION IN LONDON.

THE new Royal Commission on University Education in London has before it a task which will put to the test the statesmanship even of its most distinguished members. The Commission is to inquire into the working of the present organization of the University of London, and into the facilities which already exist in London for advanced education—general, professional, and technical—and to consider what provision ought to exist in London for university teaching and research. It is to make recommendations as to the relations which should exist between the university, its incorporated colleges, the Imperial College of Science and Technology, and other schools and public bodies concerned, and to recommend the necessary changes in constitution and organization.[1]

To no department of higher education in London ought the results of the inquiry to be more important than to medicine. There are very many matters affecting medical education, and the relation of the medical schools to the university, which require adjustment. They may be summarized in two general propositions: first, that the university should be so constituted that it shall stand in such relation to the medical schools, and shall conduct its examinations in such a manner as to attract at least the large majority of medical students in London to become undergraduates; and secondly, that it should be in a position to maintain or encourage advanced medical education and research. When the Senate, as we announced some months ago, expressed the desire that a Royal Commission should be appointed, the medical schools of London addressed a joint letter to the Prime Minister asking specifically that the Commission should deal with medical education. This letter pointed out that of those medical students who took the whole of their professional course in London, less than 30 per cent. were undergraduates of the university; that in no other university town did the great body of medical students remain outside the university; and that in London they so remained, not because they did not want a degree, but owing solely to the difficulties which the university put in their way. We venture to say, as we have said before, that these difficulties do not arise with regard to the medical curriculum proper; they are not due to special exactions with regard to medicine, surgery, and midwifery, or pathology, nor to any unreasonable difficulty in the examinations in these subjects. They arise at an earlier stage, and are due more especially to the character of the matriculation examination, which is essentially inappropriate, since it should be the object of matriculation to ascertain whether the candidate has had a sufficient grounding in general principles and is possessed of sufficient natural intelligence to benefit by the instruction which it ought to be the duty of the university to give. As it

[1] The full terms of reference are given at page 574.

is, the regulations of the matriculation examination are founded on a wrong principle, are badly conceived, and are still more badly carried out. By a large proportion, if not by the majority of those who pass the examination, it is looked upon as an end in itself—as a certificate entitling them immediately to proceed to earn their living as school teachers or in other capacities. It is true that the university accepts a large number of other examinations in lieu of its own matriculation; but this is an admission of failure, and the University of London cannot afford to continue to fail.

The second point—the encouragement of higher scientific studies and original research—is very largely a question of endowment, and we venture to believe that if the university improve its constitution it will not fail to attract benefactions. The pious founder is still with us, but he is not attracted by a body which has not yet achieved a condition of stable equilibrium.

The composition of the Commission has, perhaps, been affected by the circumstance that the original object with which its appointment was proposed was to inquire into the relations of the university to the Imperial College of Science and Technology. This may perhaps account for the absence from the list of any representative of medicine, or, indeed, of the biological sciences, unless exception is to be made for the distinguished Chairman, whose philosophical studies may perhaps entitle him to that designation. The Medical Faculty has been, from the beginning of the university, numerically the most important, and until the Imperial College of Science and Technology is incorporated into the university, when it will have at least a worthy rival, it will remain the most distinguished and the most renowned. We regret, therefore, that no representative of medicine finds a place on the Commission; at the same time, it must be confessed that it would be difficult to find any such representative in London who was not more or less committed to a particular view, or who might not be thought to be so committed by those of an opposite school of thought. It would not perhaps have been easy, but it would not, we believe, have been impossible to have found some member of the profession not directly connected with London whose impartiality would have commanded respect, and whose technical knowledge would have been of great advantage to the Commissioners in sifting the evidence which they are to hear, and in drafting recommendations which it is to be hoped will at length fairly launch the university on a career which shall be as generally useful to the cause of higher education, both general and professional, as its best friends could wish.

THE PROFITABLE "PROPRIETARY."

THE prospectus which lies before us of a limited liability company, newly formed with a capital of £100,000 to develop the sale of certain proprietary medicines, furnishes an illustration of the profitable use which the owners of such preparations make of the fact that the public loves to dose itself. In this prospectus it is stated that "among the "numerous patent medicines which have made "fortunes for their owners may be mentioned "Pink Pills, the proprietor of which left about "£1,600,000, though he had advertised the remedy ex- "tensively for only about sixteen years, while the "owners of Beecham's Pills and Holloway's Pills, "though widely known for their generous benefactions "during life, gave or bequeathed enormous fortunes"; and, as regards the company now formed, "without "giving full expression to their expectations, the "directors confidently predict that the profits will be "sufficient to pay handsome dividends, beginning with "from fifteen per cent. to twenty per cent. the first "year, and rapidly rising." The proprietary articles which are to be taken over are five in number, consisting of "Capsuloids," "Mother's Advice (formerly "called Cicfa)," "Haemogalloles," "Figuroids," and "Sciaticine." An analysis of Capsuloids was published in the BRITISH MEDICAL JOURNAL of April 4th, 1908, page 833, which showed the principal constituent of this preparation for the hair to be haemoglobin. "Mother's advice" formerly called "Cicfa," and before that known as "Tablones," figured under the latter name in trade-mark litigation in 1906, and was then stated in court to contain pepsin, diastase, and other ingredients. Figuroids appeared among other nostrums for obesity in an article in the BRITISH MEDICAL JOURNAL, November 21st, 1908, page 1566, and the analysis there given showed its principal constituents to be phenolphthalein and hexamethylene-tetramine. Sciaticine and Haemogalloles appear to be new, and both of them are stated to have received much medical support; it is not necessary to comment on the latter statement. The excellence and merit of all the preparations are, of course, vaunted in the prospectus; but no uncertainty is shown as to the part played by advertising in making the sales. An accountant's certificate is reproduced showing that the Capsuloid Company and the Figuroid Company have together spent £101,000 in advertising in five years, and have in the same time made a net profit of £52,500. No doubt the promoters of the new company are justified in saying: "It is evident that "such increased advertising as is made possible by "the additional capital will result in an enormous "increase in business"; but the further statement may be doubted: "In these days of increasing intelli- "gence on the part of the public the continued "success of any remedy is largely dependent upon "its merit," success being, of course, taken to mean commercial success, and not curative efficacy.

THE COMING CHANGE IN THE MEDICAL PROFESSION.

AN address on The Coming Change in the Medical Profession, recently delivered by President Charles W. Eliot, of Harvard, is published in the *Boston Medical and Surgical Journal* of February 11th. After speaking of the great advances in medical science during the past half-century, he went on to ask if it was possible to foresee in any measure the changes in practice of medicine as a money-earning and livelihood-yielding profession which these advances would bring about. He said he had heard that medical practice had been rather seriously affected in many of the large cities of the United States by the increased attention—"often an ignorant, "crude attention"—given to the relation of the mind to the body. He heard, too, of serious reduction of fees resulting from the widespread mastery of the various exquisite skills involved in surgical practice to-day. He was persuaded that many of the operations which used to be regarded as justifying high fees were now often performed for low ones, and that this tendency had not yet exhausted itself. He added that the great scientific powers which had been brought to bear on preventive medicine would strongly affect private medical practice as a

means of livelihood and the prospects of the profession as a whole. President Eliot went on to ask: "Must we not therefore give a new attention "to preventive medicine as the stronghold of "the medical profession hereafter? We see signs "of it already developing a considerable capacity of "earning a livelihood, and that capacity is necessarily "at the root of every liberal profession, as of every "trade. It is good to see how the salaried places "are multiplying in preventive medicine, and how "good the salaries have come to be in many of our "cities, and they are better still in Europe." He proceeded to say that the practice of medicine would be seriously affected if preventive medicine becomes successful on a broad scale. "The very source of "the livelihood," he said, "will be dried up if "preventive medicine succeeds. We might perhaps "imagine that surgery would on the whole escape "from this result of the well-directed expenditures of "society for protection against disease, and that "surgery would remain a better field for the acquisi-"tion of a livelihood than medicine." But even that, he thought, might be doubted, because almost all the discoveries in bacteriology and pathology and other contributory sciences tended to prevent the internal injuries and disorders for which surgery now so often supplied a remedy. Not even the surgeon, in President Eliot's opinion, can rely on private practice fifty years hence as the means of yielding the livelihood that it yields now, and as a means of livelihood surgery has already been somewhat impaired. Inspired, apparently, by the dismal outlook which he sees for surgery, the orator suddenly asks: "Shall we not welcome the "coming change? Is not the function of the "medical profession regarded as preventive, higher, "better, happier than the function of the medi-"cal and surgical profession regarded as curative?" One great consolation he offers us in regard to the future of the profession: we have a great deal of truth still to learn and to acquire, and we may well be grateful for that prospect. This is about the only thing in this distinguished layman's address which seems to afford to doctors matter for gratitude. There are several points in his address which calls for comment, but we need only mention one. It is doubtless true that the medicine of the future will be to a large extent preventive. But we should like to hear something more definite about those "good" salaries which are paid to the guardians of the public health. We confess we do not look for them in more than a few places in our own country, and we see no hint of them even in the Minority Report of the Royal Poor Law Commission, the recommendations of which, as far as they affect doctors, may be summed up as the apotheosis of the medical officer of health. President Eliot has evidently a high opinion of the self-sacrifice of the medical profession, but he does not put the case strongly enough. He does not point out the remarkable fact that the progress in science which is to change the healing art into preventive science has been the work of the doctors themselves. The fact was surely remarkable enough to deserve mention, for it is the one example of a profession striving to abolish the reason for its own existence and to dry up the sources from which it draws its livelihood. And what is its reward? Hatred and all uncharitableness on the part of fanatics who, if they could, would stop all progress; carefully measured encouragement from the State and from public bodies, and indifference from the people at large, who, owing to the extinction of the scourges from which they have been delivered, cannot appreciate what has been done for their welfare.

NEWSPAPERS AND CANCER CURES.

OVER and over again we have pointed out the immeasurable harm that is done by the publication, in sensational form, by newspapers of statements as to "cures" for cancer, consumption, and other diseases. No editorial censorship seems to be exercised in such matters; with one or two honourable exceptions, the papers appear to act on the principle that in matters medical any unsifted rubbish is good enough for their readers; and it must be owned that the public which reads these accounts of marvellous cures is only too eager to be deceived. As far as the ordinary person, who is well himself and "hath no friend or brother in the fray," is concerned, one might say *decipiatur*. This readiness to swallow whatever is put into his mouth by ignorant and irresponsible scribblers will doubtless continue until, possibly three or four centuries hence, the diffusion of scientific knowledge has created an intellectual atmosphere wherein belief in such things cannot live. In the meantime it is the duty of the medical profession to keep on protesting against the hideous cruelty of raising false hopes of cure by statements made, like the razors of which Peter Pindar sings, to sell. It is not only cruel but dishonest, for it is aiding in the diffusion of falsehood. This would be bad enough if the untruth were of the speculative order; but the announcement of illusory cures must always have the most disastrous practical effects. A recent example of this evil is to be found in the case of Dr. W. T. Bull of New York. That distinguished surgeon, whose death we regret to see reported, was said, a short time ago, with the greatest positiveness to have been cured of a cancer in the throat. The American newspapers, of course, eagerly seized on the opportunity for a "boom," and their statements were considered of sufficient importance to be telegraphed to leading newspapers in this country. Yet the true state of the case must have been known at least in New York nearly a month before his death, for on January 27th the following bulletin was issued by his medical attendants: "Owing to the continued erroneous and misleading "reports concerning Dr. Bull in certain newspaper "articles and to the fact that these reports are "arousing false hopes in the minds of many "sufferers from cancer throughout the country, it "seems wise to issue the following statement: "Dr. Bull's general condition and the rheumatic "complications have improved sufficiently to warrant "his departure for the warmer climate of Savannah "in the near future. The original growth which was "the real cause of his illness has never been cured." Nevertheless, we saw no contradiction of these "erroneous and misleading reports" till after his death. It is a too familiar story. Some temporary improvement of health takes place, and this is forthwith trumpeted to the world as a cure. It is natural that, the wish being father to the thought, any arrest, however passing, in the development of a cancer, and any relief from complications, whether dependent on it or accidental, should be hailed by the patient and his friends as warranting the hope of recovery. All doctors know that these things may happen without influencing the final issue of the case. It is important that the public also should understand that improvement in the general health for a time is often unconnected with the local disease, and that the cancer itself is liable to fluctuations in its outward and visible signs, which may deceive the inexperienced. In rare cases the disease may die a natural death, and to the elucidation of this process research is now being directed. We are inclined to think that

in that line of inquiry lies the hidden path which ultimately will lead to the solution of the mystery which still hangs around the disease.

THE UTERUS AND INGUINAL HERNIA.

INGUINAL hysterocele (the presence of the uterus in the sac of an inguinal hernia) is rare, but is of interest to the surgeon on account of its relatively frequent association with hermaphroditism. The ovary and Fallopian tube have often been discovered in an inguinal hernia, and many surgeons have diagnosed ovarian hernia before operation. In hysterocele strangulation is rare, as the neck of the sac is never very narrow. A valuable monograph on inguinal hysterocele, including a useful epitome of reported cases, has been published[1] by Dr. D. J. Cranwell, Professor of Clinical Surgery at Buenos Aires, in a case which occurred in his own practice. The patient was an Italian emigrant of weak intellect. The hernia had been observed for seven months. Three days before the operation symptoms of incarceration developed, and a hard irreducible tumour was detected in the left groin. A thick cord ran from the tumour into the inguinal canal. The operator's knife laid open an inguinal sac, which contained a deep red, doughy mass. It proved to be a haematoma in the broad ligament, and when drawn out of the sac was found to be attached to an infantile uterus, the thick cord running into the inguinal canal being the cervix. This was divided and the uterus removed. The corresponding Fallopian tube and ovary, both ill-developed, were attached to the uterus, but apparently the right appendages were absent. As the patient recovered, and as the abdominal cavity was not opened during the operation, the precise extent of malformation of the uterus and appendages was not determined. The vagina was a blind sac, 2 in. long. Cranwell has collected reports of 2 cases of femoral hysterocele, 1 of obturator, and 2 of umbilical hernia of the kind under consideration. As many as 45 cases of inguinal hysterocele have now been reported; 31 were without doubt congenital. Malformation of the uterus was markedly frequent, and may have been occasionally overlooked for the reason explained above. In 3 there was double inguinal hernia, each sac bearing a more or less ill-developed uterine cornu. The frequency of hermaphroditic conditions is astonishing. Klotz's patient, aged 24, a reputed male, had hypospadias and two scrotal sacs. One sac held a cystic ovary, a Fallopian tube and part of a uterine cornu; in the other sac lay a testis and epididymis. In 5 cases the patients were to all external appearances males, and the author adds a sixth case published when his monograph was already on its way to the printers, Cornil and Brossard being the reporters.[2] Kellock's case[3] is included in the series, and we can add a seventh example of hermaphroditism associated with inguinal hysterocele, recently reported by Arnolds of Dusseldorf.[4] Inguinal hysterocele is often congenital, and it is in this variety that hermaphroditism is so often detected. Acquired inguinal hysterocele is mostly found in multiparae, and may be primary like a hernia of the caecum, or may follow an ovary already in the sac. In 9 cases of inguinal hysterocele the uterus was gravid, usually in association with an old enterocele. Hysterocele is rarely reducible, as the uterus, like the caecum, is seldom entirely invested by the peritoneum involved in the sac. Strangulation was observed in only 5 of the 45 cases of inguinal hysterocele, whilst Lejars noted this grave complication in as many as 5 out of 9 instances of ovarian and tubal hernia. The symptoms of hysterocele are not uniform, as the uterus is so often malformed or not completely involved in the hernia. It is also true that during sexual life characteristic and periodic pains are the rule, but they are absent when the malformation is great or the patient old. A hysterocele in the groin never fails to cause discomfort greater than is experienced by patients with inguinal hernia of a commoner type, and a truss cannot be tolerated. Diagnosis is often very difficult, and, especially when strangulated, an inguinal hysterocele is often supposed to be an epiplocele. A radical operation is always necessary, as a hysterocele causes much distress, and exposes the patient to great peril from strangulation or from a present or future pregnancy. When gestation is present the surgeon may wait until term if there be no severe symptoms. The uterus does not always lie entirely in the inguinal sac; in one instance the herniated segment contained the placenta and the legs of the fetus only (Nores); the patient died two hours after spontaneous delivery through the vagina. Scanzoni induced abortion with good results in his case; spontaneous delivery occurred in Rosanoff's patient, the uterus was then reduced, but removed eleven weeks later; the patient had borne eleven children. In 5 cases Caesarean section was performed, four of the children but only one mother being saved. All these operations, however, were done before the days of thorough aseptic operating. In inguinal hysterocele, where the herniated uterus is not pregnant, the surgeon will still, as a rule, find hysterectomy the only safe course, the hernial gap being treated by a radical operation.

[1] *Revue de Gynéc. et de Chirurg. Abdom.*, vol. xii, 1908. September-October, p. 777.
[2] Ibid., March-April, 1908, p. 135.
[3] BRITISH MEDICAL JOURNAL, March 21st, 1908.
[4] Report of the Niederrheinische-westfälische Gesellschaft für Gynäkologie, *Monatsschr. f. Geb. u. Gyn.*, October, 1908, p. 463.

THE MEDICAL INSPECTION OF SCHOOL CHILDREN.

IN the BRITISH MEDICAL JOURNAL of February 20th, p. 493, we ventured to give a gentle hint to educational authorities that it would be well for their officials to exercise a reasonable amount of discretion in regard to the use which they make of the reports of their medical officers. We pointed the moral by quoting a letter addressed to a parent not long ago by an education official of the London County Council. In that letter, what purported to be an extract from a report stating the results of the medical examination of a child was given. The extract represented the opinion of a specialist on a case of ear disease, and was, of course, expressed in technical language, which would naturally convey little meaning to an ignorant parent, and would therefore be all the more likely to cause alarm. Moreover, the specialist had thought fit to reflect on the handiwork of a surgeon who had previously operated on the child. This may be right enough if the document had been treated as confidential; our point is that the conveyance of such a report to a parent is wrong from every point of view. We are glad to learn that our remarks have had an immediate effect. At a meeting of the London County Council held on February 23rd, Dr. Beaton referred to the matter and asked the Chairman of the Education Committee whether he would see that in future letters from the medical department should be written so that they might be easily understood by the parents of the child and free from unfair criticism of members of the medical profession. Mr. Cyril Jackson replied that in his opinion the letter ought not to have been sent, and he would endeavour to see that such letters were not sent out again. In this case it was written by a clerk without check by a superior officer, and the clerk had since left the service of the Council. This explanation

is satisfactory, as it seems to show that the letter was sent on his own initiative by a clerk. But it is highly desirable, if the machinery of school inspection is to work smoothly, that care should be taken in handling such delicate matters that subordinate officials be not allowed to magnify their office.

TEARS OF BLOOD.

THE belief that certain individuals are able to weep tears of blood is of such antiquity that the German equivalent for "bitter tears" is *blutige Thränen*, "bloody tears." As far, however, as we are aware, no authentic instance has been quoted in which it has been established beyond doubt that the blood was actually secreted by the lacrymal gland. Micas[1] has published a very interesting article, Real and False Tears of Blood. It is a clinical study on conjunctival haemorrhage. Some years ago the author was consulted about a boy aged 12 years, who from the slightest cause, such as laughing, or sometimes apparently for no cause whatever, wept tears of blood—an occurrence which was often repeated several times a day. The lad was pale and enervated from constant haemorrhage. The source of the bleeding was the tarsal conjunctiva, which was covered with fine papillae, and light cauterization with the galvano-cautery resulted in a cure. This case led the author to study the literature of the subject. He found that de Wecker was profoundly sceptical as to the existence of real tears of blood, whereas Panas seemed to admit the fact that in certain rare circumstances the lacrymal gland secreted a sanious fluid. George Seyer recorded a case of an infant whose eyes were closed from birth by severe blepharospasm. They were perfectly normal, but when the child cried tears of blood rolled from the lids. A simple collyrium of rose-water cured the condition. Mazars de Layelles reported two cases; one, a delicate anaemic, phthisical girl, began to weep in his presence tears, first blood-stained, and then real tears of blood. Micas cites other similar examples, but, as he says, in none of them is it certain that the blood did not come from the conjunctiva or from the lacrymal passages. He feels that it is unwise to deny the possibility of a sanguineous secretion from the gland, but that examples in which other sources cannot be shown to be present must be exceedingly rare. He divides cases of conjunctival haemorrhages into subconjunctival and extra-conjunctival. The first, ecchymoses, are in the aged said to be a warning that the arteries are diseased, and that apoplexy may be feared, but Trousseau thought there was little connexion between the two. In 85 cases of subconjunctival ecchymoses in persons over 55 years old which he followed up, only 4 became paralytic, and in one of these the condition of the eye followed a fall. Micas argues that Trousseau was too optimistic, as he himself knows of at least one case where a violent cerebral haemorrhage carried off an old lady who had had a succession of subconjunctival ecchymoses. The author then discusses extra-conjunctival haemorrhages, and points out how fatal they may be to babies, giving several instances in which infants have died from the anaemia resulting from bleeding from the eye. Micas finds that protagol is the best drug to use in cases of extra-conjunctival bleeding.

A FURTHER report which has been presented to the General Medical Council by the Committee of Reference in Pharmacy bears testimony to the steady work which is going on for the purpose of embodying in the next *British Pharmacopoeia* the well-sifted results of current research and criticism. The present report is on similar lines to its predecessor published in December, 1906, and includes the results of work down to the end of October, 1908. The report is necessarily concerned mainly with matters of detail, in which the characters and tests to be officially prescribed for drugs and chemicals figure largely; in several cases new monographs are proposed to be substituted for those at present in the *Pharmacopoeia*.

[1] *Recueil d'Ophtalmologie*, November, 1908.

WE regret to have to record that Emeritus Professor D. J. Hamilton died on February 19th at his residence in Aberdeen. Professor Hamilton had suffered from a long illness which compelled his resignation last October of the Chair of Pathology in the University, to which he had been appointed in 1882.

Medical Notes in Parliament.

[FROM OUR LOBBY CORRESPONDENT.]

The Debate on the Address usually occupies a week or more at the beginning of the session, and enables members to discuss certain urgent questions before the real work of the session is entered on. After the address in reply to the King's Speech had been moved and seconded on the first day of the session the debate covered general questions, and some interesting speeches were delivered, notably those by the Prime Minister and Mr. Balfour. On Wednesday the first amendment was moved, namely, that on unemployment, and was opened on behalf of the Labour members by Mr. Barnes. It led to an animated discussion, in which the Government and the Local Government Board were roundly taken to task for not having done more to meet a pressing problem. Mr. John Burns made a spirited defence of his department, and indicated certain directions in which he was prepared to advance. His speech did not satisfy his critics, and after a reply by Mr. Churchill on behalf of the Government a division was taken, and the Government had a majority of 104. On Thursday and Friday the Tariff Reform amendment was debated and rejected, and on Monday Mr. Ponsonby raised the question of the House of Lords and the intentions of the Government. His amendment occupied the whole day, and after closure was defeated by 225 to 47. In the Lords the address was voted last Thursday after two days' debate on the state of Ireland. The same subject occupied the Commons on Tuesday and led to a lively debate which lasted till Wednesday evening. Other amendments on the paper should be disposed of by Thursday night and the Address voted. In this case the Scottish Temperance Bill will occupy Friday as the first private members' day.

Private Members' Bills.—These bills have, as usual, been decided, as to priority of introduction, by the ballot. This year a protest was raised against this system by Mr. R. Pearce, who condemned the present haphazard system for obtaining precedence, and argued that bills on which time had been spent in previous sessions should have a better chance on their reintroduction. He put forward an elaborate plan for the purpose, and Dr. Rutherford supported his proposal. It was opposed, however, by the Chief Whip of the Government, and also by Mr. Balfour and the Prime Minister. In the face of this opposition, the proposal was withdrawn, and the ballot took place as usual. There were 353 members who balloted. The result was to give Mr. Dobson the first place, and, oddly enough, he introduced on Friday the Daylight Saving Bill, which Mr. R. Pearce fathered last year, and fixed the second reading for March 5th. Mr. John Briggs, who drew the next place, introduced a bill to prohibit or regulate the sale of intoxicants on Sundays, and fixed the second reading for March 12th. Mr. Howard, who came third, introduced a bill to amend the law of the repre-

sentation of the people and to remove the electoral disabilities of women. The second reading was fixed for March 19th. Mr. Hills introduced a bill for a minimum wage in certain sweated industries, and fixed March 26th for the second reading. Mr. Dunn devoted his place in the ballot to the amendment of the Education Acts as regards Administration and the Provision of Meals Act of 1906 and named April 23rd for second reading, while Mr. R. Pearce, lucky in spite of his complaint of the ballot, drew seventh place and introduced a bill to amend the Coal Mines (Checkweighers) Act, and selected May 7th for the second reading. Sir Luke White introduced again the Coroners' Bill which nearly passed last year, and Mr. Pirrie, who drew thirteenth place, introduced a temperance bill for Scotland, and selected Friday, February 26th, for the second reading in the hope that the debate on the address might be concluded on the previous day. At the most only eleven Fridays are expected to be available for private members' bills this session, and therefore a large crop of private legislation cannot be anticipated. The bill dealing with unemployment is in the hands of Mr. Hodge and is backed by the Labour Party. It will come on for second reading on April 30th. The Irish members have three bills down, but were not so successful as usual in the ballot. There is one Public Health Bill dealing with water rights in the hands of Mr. Leif Jones, and the second reading is fixed for Friday, April 16th, a speculative date as it is the Friday after Easter, and the House may not have finished the holidays.

Vivisection.—The ballot did not favour the antivivisection members, and so Sir F. Banbury introduced his bill on Monday to prohibit experiments on dogs, commonly called the Dogs Protection Bill. It is backed by Sir F. Channing, Mr. Ellis Griffith, Mr. Swift MacNeill, and Sir Henry Cotton, and is put down for second reading on Friday, May 14th.

Irish Poor Law Reform.—In reply to Captain Craig, Mr. Asquith said it was true that early last year his right hon. friend the Chief Secretary expressed the hope that he would be able to introduce this session a Poor Law Reform Bill for Ireland. But he subsequently suggested that the whole question of Poor Law reform in the United Kingdom generally would have to be considered when the Royal Commission had reported. The report of the Royal Commission, which had now been issued, intimated that a separate report would explain in detail the application of the suggested reforms to Ireland. Until that report had been received and considered in conjunction with the main report, if would not be possible to say whether separate legislation in regard to Ireland would be necessary or desirable. He might add, however, that supporters of Poor Law reform in Ireland need have no apprehension that the recommendations of the Viceregal Commission would be ignored. In reply to a further question, Mr. Asquith said he did not know when this separate report would be issued.

Medical Relief.—Mr. Joynson-Hicks asked the President of the Local Government Board on Monday whether he would issue amended instructions to the pension officers that temporary medical relief, either outdoor or in an infirmary, did not disqualify an applicant for the old-age pension. Mr. Burns said that instructions had already been issued that temporary medical relief should not be a disqualification. He was not aware of any one being disqualified owing to the receipt of such relief.

Legislation for the Feeble-minded.—In answer to Sir George Kekewich, Mr. Gladstone stated on Monday that the question of legislation on the report of the Royal Commission on the Feeble-minded must be subject to Parliamentary exigencies, but he might point out that Section 62 (2) of the Children Act of last session already dealt with feeble-minded children and young persons who were guilty of offences.

Vaccination Exemption.—Mr. Lupton asked the President of the Local Government Board if his attention had been called to the fact that vaccination officers had shown vaccination exemption declarations to the agents of the trustees of dwellings erected for the public in order that pressure might be brought upon tenants who had made such declarations; and whether he would issue an order directing vaccination officers in future to vouchsafe no information whatever upon the subject of exemption declarations to any persons other than the official superiors of the vaccination officers. Mr. Burns said that he had received a complaint on this subject, and he was making inquiry with regard to it. He might, however, state that under Section 24 of the Vaccination Act, 1867, as amended by Section 6 of the Vaccination Act, 1871, it was the duty of the vaccination officer to allow searches to be made in his Vaccination Register. Any such search would disclose the fact that a statutory declaration had been received by the officer in respect of a child whose name was entered in the register, and in these circumstances it did not appear to him that he could make an order of the kind suggested.

Vaccination in the Navy.—Mr. Lupton asked the First Lord of the Admiralty on Tuesday if a paper written by Surgeon N. Howard Mummery, R.N., was submitted to the Director-General of the Navy Medical Department; if the Director-General sanctioned the reading of the paper at the annual meeting of the British Medical Association last summer; if he was aware that the paper suggested that in the near future all men joining the service should be vaccinated against syphilis with matter obtained through the syphilization of monkeys; and if he would give an assurance that no man on entering the navy should be subjected to voluntary or compulsory syphilization by the surgeons of the navy or others in authority over the men. Mr. McKenna said that he must express his regret that in replying to a previous question in December last from his honourable friend he was unaware that any ground existed for such definite statements as he now made in his present question. On inquiry he found that a lecture was allowed by the Medical Director-General to be read on the subject referred to on the understanding that it represented only the author's own private views. The lecture was not delivered with the authority of the Board of Admiralty, nor was it in any way endorsed by the Medical Department of the Navy. He was making further inquiry into the matter. He could only now add that the suggestion contained in the lecture and complained of by his honourable friend was as repugnant to the Board of Admiralty as it was to himself.

The Housing and Town Planning Bill of the Government has been issued, and may be expected to be put down for second reading on an early day. As it was elaborately discussed in Committee last year, it is hoped that it may pass its second stages in the Commons with rapidity this year. Mr. Hart Davies has given notice that he will raise the subject of the taxation of site values on the second reading.

The Pure Milk Bill.—Mr. Burns informed Mr. Courthope on Monday that he hoped to introduce this Bill early this session, but he could not fix the date at present.

Kissing the Book.—In reply to Sir W. Collins, Mr. Gladstone stated on Tuesday that it was desirable that the form of oath administered in court should in no case require the act of kissing the book. He would consider whether legislation was necessary for this.

AT the International Congress on Leprosy which, as already announced, is to be held at Bergen on August 16th to the 19th of the present year, three official languages will be recognized—German, French, and English. The following is the official programme of questions to be discussed: 1. The various clinical forms of leprosy and their diagnosis. 2. The causes and mode of propagation of the disease; pathological, anatomy, treatment; the means to be employed by public authorities for checking as quickly as possible the ravages of the disease, and of definitively exterminating it with the least possible inconvenience to those afflicted with leprosy.

England and Wales.

[FROM OUR SPECIAL CORRESPONDENTS.]

MANCHESTER AND DISTRICT.

OVERCROWDING OF THE PROFESSION.

SINCE the issue of the Educational Number of the BRITISH MEDICAL JOURNAL last summer, the Joint Committee of the Manchester and Salford Divisions has been considering whether some further means might not be adopted to warn young men who might be thinking of entering on a medical career. It appears that some such methods have already been adopted in France where things are, if anything, in a worse condition than in England. A large number of medical associations in France have combined to issue letters of warning, pointing out among other things the large amount of pensions and allowances that have to be made to needy medical men or their widows. In 1891 the Association générale des médicins de France paid out for this purpose 39,490 francs, while in 1903 it was necessary to pay out 170,030 francs. The total sum spent in helping the families of doctors in distress by all the societies in 1904 was 318,000 francs, and the appeals for assistance were constantly increasing. The chief causes of this state of affairs are said to be: (1) The great and uncontrolled increase of illegal medical practice. (2) Overcrowding of the profession itself. In the great centres of population there is one doctor to every 900 inhabitants, while in the rest of the country there is one to every 2,000, the average being for the whole country 10.4 per 10,000. (3) The great increase of clubs, which means a decreasing income for medical men. (4) The lessened amount of illness that exists. In Paris, in 1886, the death-rate was 24.3 per 1,000, and the number of cases of illness was estimated as 243 per 1,000 inhabitants, while in 1904 the death-rate was only 17.6 and the cases of illness 176 per 1,000.

It is further stated that 45 per cent. of the medical men in France do not realize annually £100 in fees. That overcrowding is still on the increase is shown by the fact that while only about 530 medical men fall off the list per year through death or other causes, there are about 1,200 fresh diplomas granted annually. The circular setting forth these facts concludes with an earnest appeal to young men to consider them carefully before embarking on a career that offers so few chances of success in France.

It was felt by the Manchester Divisions that the condition of the profession in England, even if not quite so bad as in France, was sufficiently alarming to justify some similar measures being taken. Accordingly the following circular letter was drawn up, and a copy has been sent to the head masters of all the public schools and the grammar schools in Lancashire, as it was known that many head masters are in the habit of advising their senior boys to take up a medical career:

The Medical Profession as a Career.

February 8th, 1909.

Sir,—We are instructed by the Committee of the Manchester and Salford Divisions of the British Medical Association respectfully to call your attention to the following considerations:

The increase in the number of students this year entering the medical school in Manchester is evidence that there is a complete ignorance on the part of the parents of the economic crisis in the profession of medicine.

In general practice, to which nine-tenths of the entrants are destined, the field of work, and therefore the income, has been contracting, and is bound to contract as disease becomes more and more preventable. A single instance—Dr. Davy, in his presidential address to the British Medical Association, said: "My predecessor told me that fifty years ago his average income from attendance on cases of typhoid was £300 a year. For the past few years my income from that source has hardly averaged 5 guineas."

The BRITISH MEDICAL JOURNAL says: "The average income of the practitioner has been estimated at £200—£250 a year. The chances of being able to save even to the extent of the capital expended in education are in a large proportion of cases slight; while reasonable provision for old age, after family expenses are met, is difficult and too often impossible." This is after a training lasting seven years and costing £1,000—£1,200, and even this pittance is only gained by working seven days a week and being "on duty" twenty-four hours a day, with the natural result that the death-rate in the medical profession is higher than in any other, the army not excepted.

In France and Germany it has been found needful to issue "letters of warning" to intending students, as the results of practice are equally unsatisfactory there.

We would therefore ask you to urge intending entrants to inquire further before joining so overcrowded a profession.

The letter is signed by the Honorary Secretaries of the two Divisions.

THE MIDWIVES ACT IN LANCASHIRE.

At the end of the year 1908 there were 949 midwives on the Lancashire county register, and of these no less than 725 were in bona-fide practice in July, 1901. As 78 of the total are temporarily out of practice, that leaves 871 in actual practice at the end of the year. Some difficulty has been found in getting the midwives to comply with the section of the Act that requires them to give notice in January of their intention to practise, a considerable number each year failing to send in notice. During the quarter ending December 31st 128 stillbirths were recorded, and in 20 cases death of either the mother or the child occurred before the attendance of a medical man. There were 331 cases recorded in which a medical practitioner was sent for in accordance with the rules of the Central Midwives Board, against 263 in the same quarter of 1907. Of these, 143 were for obstructed labour or uterine inertia requiring instrumental assistance, 43 for unusual presentations, and 27 for ruptured perineum. The county has made no provision for the payment of practitioners summoned to the assistance of midwives, and only in very few cases have boards of guardians made any arrangements, mostly extremely unsatisfactory, and limited to purely pauper cases. The circular issued by the Local Government Board in July, 1907, has, in fact, been largely of no effect. Puerperal fever occurred in 42 cases, with 15 deaths, against 36 cases with 19 deaths in the same quarter of 1907, and 21 cases with 10 deaths in 1906. There has thus been a considerable increase in puerperal fever. In 12 instances midwives did not comply with the rules as to forwarding a copy of the record of sending for medical help in cases which subsequently developed into puerperal fever, nor did they report the cases when diagnosed as "fever." In all such cases the midwives are required to answer charges of neglect, while other charges of negligence or misconduct have been made against 3 midwives. The records of sending for medical help have steadily risen in number during the last four years, the numbers being 428 in 1905, 875 in 1906, 1,009 in 1907, and 1,543 in 1908, the increase being due partly to the greater efficiency of inspection, and partly to the midwives realizing more fully their obligations. The two trained nurses appointed to give their whole time to the inspection of midwives report that, though on the whole the records are better kept, and there is a distinct improvement in the mode of practice and in general cleanliness, a certain number of midwives give a considerable amount of trouble by evading the rules, by want of cleanliness and general unsatisfactory conduct; some of the most illiterate hardly seem to have intelligence enough to grasp the present requirements, and through want of education many of them cannot correctly keep their registers. "As a result of continued instruction, some of the midwives who previously had not the faintest knowledge are now able to take the temperature sufficiently well to be able to realize when medical assistance is necessary and a number can already count the pulse." One cannot help thinking that such a report shows a woful defect in the quality of many of the midwives of Lancashire. The Lancashire Education Committee offers annually five scholarships of £30 each for the training of midwives. The proportion of bona-fide midwives compared with the fully certificated is very large, 725 out of 949, and there is some ground for fear that there may be some shortage of midwives after April, 1910. It is said to be possible that attempts may be made to get over this by unqualified women taking cases nominally under the charge of medical men. This is, of course, a dangerous procedure, unless the greatest care is taken, for not only would there be a risk of a charge of employing an unqualified assistant, but unless the oversight by the medical man is actual and not merely nominal, and is strictly and carefully carried out, the lot of parturient women would be no better, if, indeed, it would not be worse, than it is at present.

Manchester Royal Infirmary.

At the annual meeting of the trustees of the Royal Infirmary, held on February 14th, the Earl of Derby, who was elected president, thanked the meeting for electing him in place of his father, and was pleased to think that he was the fourth member of his family in succession to occupy the position of president. He expressed a confident hope that the King would be able to visit the infirmary when he came to review the Territorial Forces in July.

The Chairman of the Board, Mr. Cobbett, in moving the annual report, drew attention to the serious state of the finances of the infirmary. About £9,000 still remained to be raised in order to open the new building free from debt. In addition to this, the annual expenditure was a matter of great concern. It was calculated last year that by removal into the new building there would be, in the absence of an increased subscription list, an annual deficiency of between £7,000 and £12,000. The subscription list had been increased only to the extent of £1,600, so that the position in which the Board stood was that it might have to spend £10,400, and must spend at least £5,400 more than the income, unless the infirmary was to be carried on in a way which would not give the public the full benefit of its resources. In this condition the Board felt serious anxiety about the future of the institution. Mr. Cobbett, in alluding to the question of women doctors, announced that the Board had considered the question and decided to appoint a committee to inquire into the subject of the appointment of medical women to resident positions in the infirmary and to report in writing to the Board.

Lord Derby said that what the medical women wanted was not remuneration, but experience, and those responsible for the management of the infirmary wished to give them that experience, but they could not do what they had been asked to do on the spur of the moment; he was sure that the wisest course had been taken in appointing a committee to consider the question thoroughly.

Professor Rutherford and the Nobel Prize.

The Council of the Manchester University has shown its appreciation of the achievements of Professor Rutherford by entertaining him to dinner in the Whitworth Hall to celebrate the award to him of the Nobel prize for physics. The Vice-Chancellor, Dr. Hopkinson, was in the chair, and there was a distinguished company to welcome Professor Rutherford, who was accompanied by Mrs. Rutherford. After the loyal toasts had been honoured, the Vice-Chancellor called upon Sir J. J. Thomson to propose the toast of the evening, and reminded those present that Sir J. J. Thomson himself was an old student of Owens College, a governor of the university, himself a winner of the Nobel prize, and the teacher of the guest they were specially met to honour.

Sir J. J. Thomson said that Professor Rutherford owed the Nobel prize to Manchester, for he had already done some remarkable work in physics before he went to Cambridge. He had never really received the recognition he deserved for what he had done in what is now known as wireless telegraphy, for he took with him from Manchester an electrical instrument by which as early as the year 1895 he was able to signal over two miles by means of this wireless telegraphy. At Cambridge he had devoted himself to the investigation of the remarkable properties of gases exposed to the influence of Roentgen rays. He was glad that the Nobel prize had come to Professor Rutherford while still in the full vigour of his faculties, and it would certainly stimulate him to still greater discoveries.

Professor Rutherford, in reply, said he felt honoured by being a member of the staff of the university. He had spent twenty-three years in New Zealand, then passed to Cambridge for three years under Professor Thomson, and then spent eight years in Montreal. As a new arrival in Manchester, his first impression was the strength of its staff not only in the direction of teaching but of research. In no instance had fortune favoured him more than when he was invited to fill the place of Professor Schuster in the Chair of Physics. The history of science showed that it was the professors in the universities that supplied the greater part of the scientific facts. If they took the subject of wireless telegraphy, they found that all the properties of electric waves known to-day were known at Cambridge long before the inventive power of Marconi brought them to perfection. A complete department of science had been added to our knowledge since 1895, and he felt that the advance of the future would be mainly along the scientific course, and if universities were to hold their place in the national life, they must be the centres of national research.

Professor Rutherford's reticence about his own great achievements was very striking, and at the close of his reply he was accorded a most enthusiastic reception.

NEWCASTLE-UPON-TYNE.

Glasgow University Club.

Last week, in the College of Medicine, the annual address to the members of the Glasgow University Club was delivered by Sir Hector C. Cameron, Professor of Clinical Surgery in the University of Glasgow. The subject dealt with was mammary cancer. As the paper is to be published in due course in this Journal the opportunity will be afforded to all of reading it. For the present it is sufficient to say that the address, which bore marks of careful preparation and thought, and which was extremely suggestive, from the point of view of late recurrences of the disease, was listened to by the audience with close attention. Mr. Rutherford Morison, in an able speech, proposed a vote of thanks to the lecturer.

In the evening Sir Hector Cameron was entertained to dinner by the members of the club. On this occasion there was a new departure. Sir Thomas Oliver, in recognition of the knighthood recently conferred upon him, was also a guest. In the absence of the President of the Club, the Rev. Mr. McGonigle, the chair was occupied by the ex-President, Dr. Johnstone Weir, of Jarrow. Between sixty and seventy gentlemen sat down to dinner; among the number were the Lord Mayor and the Sheriff of Newcastle-upon-Tyne and Sir Isambard Owen. In an appropriate speech Dr. Napier Burnett proposed the health of Sir Hector Cameron, who, on rising to respond, was most cordially received. Becoming reminiscent, Sir Hector alluded to the fact that since his student days several of the Chairs in the University had been filled three or four times; but however such events might be a cause of sadness, there was no occasion to be pessimistic, for there was constantly coming on a race of new men capable of filling the vacancies as they arose. To the great advances being made in education Glasgow University was contributing, under the able principalship of Sir Donald MacAlister. Dr. Johnstone Weir, his fellow student, in a delightful speech, proposed the health of Sir Thomas Oliver, who acknowledged the compliment. To Dr. Mearns of Gateshead was entrusted the toast of "Other Universities and Seats of Learning," which was responded to by Sir Isambard Owen in a speech at once racy and full of information.

New Colliery Accident Station.

At the invitation of the owner of the colliery, Mr. Cochran Carr, and in presence of a large number of mine managers and officials, medical men and friends, Sir Thomas Oliver opened an Accident Station at Benwell Colliery. In doing so he alluded to the value of such a station for the reception and treatment of men brought to the surface when injured in the pit, and observed that the early application of the antiseptic treatment to wounds received in coal mines materially shortened the duration of the illness. Sir Thomas paid a high compliment to Dr. G. H. V. Appleby, Surgeon to the Colliery, to whose suggestion as well as to Mr. Carr's generosity the accident station was due. He concluded by expressing the hope that ere long colliery proprietors and mine managers throughout the country would follow the example set them by Benwell Colliery.

Mr. Haldane at Newcastle.

Mr. Haldane, Secretary for War, in an address to the undergraduates of Armstrong College, made an appeal to the College for officers, and said that his aim was to organize the Territorial Army on scientific lines identically the same as those of the regular army. So far as recruiting for the army of home defence was concerned Newcastle and the northern districts had done remarkably well.

WEST YORKSHIRE.

BRADFORD AND TUBERCULOUS MILK.

THE Medical Officer of Health for Bradford (Dr. Arnold Evans) has issued an interesting report on tuberculous milk and the veterinary inspection of cows, in which he calls the attention of the Health Committee of the Bradford Corporation to the following points: (1) That Bradford milk, probably to the extent of 8 to 10 per cent., may be infected with tuberculosis. (2) That there is considerable danger to human beings from the consumption of this milk. (3) That no direct action other than the application of the regulations under the Dairies, Cowsheds, and Milk-shops Order is being taken to abolish this source of human tuberculosis. He suggests that a systematic inspection of all cows in the city should be made and that advice should be given to the owners of infected animals on the importance of separating the tuberculous from the healthy ones. Dr. Evans recommends:

1. That the town clerk be instructed again to advertise the provisions of the model clauses contained in the corporation's local Act of 1900, which has become practically a dead letter.
2. That an arrangement should be made with the Pathological Department of the Leeds University for the examination of milk by the inoculation of guinea-pigs and the provision of a report to the medical officer of health.
3. That the regular inspection of milking animals be made and a veterinary surgeon appointed for the purpose.

These recommendations, if carried out, would certainly tend to lessen the danger from tuberculosis in Bradford, and we trust Dr. Evans will have the support of the Health Committee and the Corporation.

MEDICAL INSPECTION OF SCHOOL CHILDREN IN BRADFORD.

Some reference was made in this column last week to this subject and a hope was expressed that means would soon be found to remove the friction between the medical practitioners and the school medical officers. We are happy to think that a solution of the difficulty is probable. At a meeting of the Bradford Division, held on February 17th, the question was thoroughly threshed out. Dr. Crowley, the Medical Superintendent of the Bradford Education Committee, was present, and very frankly stated his views. He was able to show that the indiscriminate treatment of disease had not been attempted at the school clinic and that there was no intention of doing so. Only the children of very poor parents would be attended to. Children would always be referred in the first instance to their own doctor for medical attendance. The treatment of ringworm and running ears was on a rather different plane. These Dr. Crowley looks on as diseases of a peculiarly dangerous character to the schools themselves and ought to be treated, if necessary, at the school clinic. Certificates that the child was not in a fit state to attend school, if given by a medical practitioner, would be accepted without demur by the Education Authority.

BIRMINGHAM.

ACTION OF THE BIRMINGHAM WATER UPON LEAD.

AT the inquiry which is being held in Birmingham with regard to the tinning trade danger and Home Office regulations, Dr. Robertson, M.O.H., said that the soft water with which the city was supplied had an effect upon lead; if a lead-lined kettle filled with the water were allowed to stand on the hob all night, as was common, and then boiled in the morning, the water would contain lead. There would be practically no risk if people would empty their kettles, and if, before using the water in the mornings, they allowed the tap to run a short while. The City Council had memorialized the Home Secretary on the subject, because it was anxious about the number of the common kettles that were being sold in Birmingham.

HEALTH OF BIRMINGHAM.

The death-rate for the year 1908 was 15.9 per 1,000, which is the lowest ever recorded. Comparing the four-yearly period 1905–1908 with previous four-yearly periods at intervals of ten years, it will be seen that there has been a marked improvement in the death-rate:

	Average Death-rate.
1875-1878	24.5
1885-1888	19.8
1895-1898	20.2
1905-1908	16.2

The birth-rate was 28.4 per 1,000, as against 28.3 in 1907 and an average of 31.5 in the ten years preceding 1908.

LIVERPOOL.

PAY WARDS AT THE ROYAL SOUTHERN HOSPITAL.

AT the annual meeting of the Royal Southern Hospital, held at the Town Hall on February 8th, a remarkable discussion took place, which has been followed by an animated correspondence in the daily press, and has led to a resolution being passed by the Association of the Honorary Medical Officers of the Liverpool Medical Charities.

At the annual meeting of the hospital Dr. Charles W. Hayward, Operating Surgeon at the Hahnemann Hospital, said he wished to call the attention of the trustees of the hospital to a matter which he thought had not presented itself to them in what he and others conceived to be the true light. There were, he said, at the Southern Hospital one or more private wards into which patients were admitted and treated on payment to the hospital of 2 guineas a week for board and maintenance; but the doctors who attended these cases were not allowed to receive anything for the attendance they gave. These patients, he said, were all, or nearly all, perfectly willing to pay. He quoted an instance in which, he said, the patient was not only able to pay, but had actually arranged to pay a surgeon for an operation, and was about to go into a nursing home, when the friends were advised to send the patient to the hospital, where the operation would be performed for nothing. This was done, to the pecuniary loss of the surgeon who was originally consulted and of the home to which the patient had arranged to go. Dr. Hayward said there were plenty of people who had been in the private wards, several with good names in Liverpool, who were all under the stigma of receiving charity from the medical officer if not from the hospital. Other hospitals in Liverpool had private wards, but their view was that if a patient entered these private wards, it was not fair that the doctor should not be paid if the patient could afford it. He said there was one phrase in the statement of Mr. Adamson, the President, with which he quarrelled, namely, that great care was taken to secure that only the right class of case was admitted. He did not like to use harsh words, but that was not correct.

Mr. Adamson said that the case specially referred to by Dr. Hayward was that of the wife of a ship's officer who in reality was not in a position to pay adequate fees for the operation (amputation of the breast) which was required. He said that the circular, which was sent to every applicant for attendance in the private ward, read as follows:

> The private wards at this hospital are for the use of poor persons who can pay 2 guineas per week towards their nursing and maintenance, but who are unable to pay the specialists' fees for the treatment necessary for their cure. Persons who can pay these fees for treatment at home or at a nursing home are not eligible for admission.

Every patient admitted into the private ward was introduced by a member of the honorary staff or by a resident officer by arrangement with an honorary officer. It would be a crying shame, continued Mr. Adamson, if the medical men who used the hospital's theatres and implements, and took up the time of the nurses, should make any charge to the patients. Whenever a vacancy occurred on the honorary staff there was a struggle among medical men to get in. A London man had said the other day that it was worth £10,000 a year to get into a London hospital, and in the case of a Liverpool hospital it must be worth at least £5,000.

In the newspaper correspondence which followed the question was discussed from various points of view. Needless to say, medical practitioners exposed the absurd exaggerations uttered as to the pecuniary value of hospital appointments, and showed that they were sought not so much from their monetary results, but because it was necessary to hold them if men desired to carry out special

lines of clinical work or practice. As regards the question whether adequate means have in the past been taken to limit the use of the pay ward to persons unable to afford fees for operations and other special treatment, it appears that the inquiry form now in use was only adopted on January 4th, 1909. The paying ward has been established since 1892. With regard to the general question of whether honorary medical officers of hospitals should have the right to charge for the services rendered to patients who occupy pay wards and who are in a position to pay professional fees, the Association of Honorary Medical Officers of the Liverpool Medical Charities passed the following resolution at a meeting held at the Medical Institution on February 15th:

> That, in the opinion of this association, any honorary medical officers attending patients in hospital who are occupying private wards should be at liberty to charge for their services. That the association does not, however, by this resolution express its approval of the existence of private wards in the general hospitals.

LEEDS.

The General Infirmary.

An examination of the tables of statistics for the year ending December 31st, 1908, which have been prepared for the annual report, shows that the amount of work done by the various departments remains about the same, and this, as has been pointed out on former occasions, must be taken as an indication that the infirmary with the present number of beds is not capable of dealing with a larger number of patients. The daily number of in-patients during 1908 was 365, as compared with 368 for 1907. During 1908 there were admitted 6,802 patients, which, with 335 remaining in at the end of 1907, shows a total of 7,137 treated during the year, or 51 more than in 1907. The average number of days each patient was resident was practically the same as in the former year, being 18.7 as compared with 18.9. The number of deaths in the infirmary was 531, a percentage of 7.4. Of these, 163 occurred within forty-eight hours of admission, and if these are deducted from the total the percentage falls to 5.2. Of the in-patients 1,240 were admitted into the medical wards and 3,371 into the surgical wards, exclusive of 705 accident cases, and exclusive also of 839 eye cases, 287 ear cases, and 360 gynaecological cases which were admitted into the special wards of these departments.

In the out-patient department an increase of 1,953 in the number of new patients, which reached the large total of 42,371, must raise in the mind of any one acquainted with large hospitals the feeling that a great many patients with trivial ailments and quite able to pay for advice must have attended. In the out-patient maternity department 501 cases of confinement were attended. The work of the two semi-convalescent homes is shown by the number of patients drafted from the infirmary to the Ida and Robert Arthington Hospitals, for this is the only way these institutions are filled. The number for 1908 was 1,154. These hospitals had a daily average of 84 patients, and the average number of days spent by each patient in them was 24.9. The total amount of alcohol—including in this both wine and spirits—consumed in the infirmary during the year 1908 was 6,428 oz. (2,021 being wine and 4,405 spirits). This means about 18 oz. daily, and, when one considers that the average number of patients was 365, the amount used is surprisingly small. Last year, with 368 patients, the amount used daily was 27 oz. In 1905, with about the same number of patients, the amount was rather more than double that used during 1908, but, as was pointed out, this larger figure represented only one-tenth of an ounce per patient per day.

BRISTOL.

Territorial Field Ambulance.

Under the Territorial Force scheme, the medical part that was allotted to Bristol was the raising of a field ambulance to be attached to the Gloucester and Worcester Battalion of the South Midland Division. After a few preliminary meetings, at one of which Colonel Russell, R.A.M.C., explained the general scheme, recruiting was started, and on May 17th, 1908, a sufficient number having been enrolled, the corps received official recognition, under the command of Lieutenant-Colonel A. W. Prichard, V.D. At the time of the annual training, 98 men and 7 officers went into camp for a week at Swanage, followed by a second on Salisbury Plain, a no mean muster for a corps only formed a few months. Since that time to the present recruiting has been most satisfactory, resulting in the corps not only being up to its establishment, but, owing to its having a certain number of special reserve men in the ranks, being at least 10 above. Both before and since camp lectures founded on the *Manual* have been given by the officers, and parades for recruits and company drill have taken place twice or three times a week. Unfortunately the corps is as yet without its own head quarters, and is at present obliged to share the drill hall of the 4th (City of Bristol) Gloucester Regiment, and though there is little prospect of a drill hall of their own being provided by the County Association, it is still hoped that some more commodious place will be found soon. As it is it is almost impossible to parade the whole corps at once, but as the summer comes on the cricket ground of the Bristol Grammar School will be kindly lent by the head-master, Captain Norwood. The corps is no better off than the London ones seem to be as regards wagons, etc., and all the stretcher drill so far (with the exception of work in camp) has been done with stretchers lent by the Marine Ambulance, a civilian corps in Bristol. Instruction in the care of horses, in harnessing, etc., is now being undertaken, and the officers will begin again their weekly rides, which were only stopped by the dark days and pressure of professional work in the winter. As a special mark of approval the corps was in August last permitted by the War Office to wear gold ornaments. The school of instruction for officers is now being held by the Adjutant, Captain Stephens, R.A.M.C. It is believed that the 3rd South Midland Field Ambulance is the first in the United Kingdom, other than a cavalry ambulance, to attain its full establishment of men. It is true that two more officers are required, but this deficiency will probably be soon made good.

Scotland.

[From our Special Correspondents.]

Indian Medical Service Dinner.

We are requested to intimate that the annual dinner of the Indian Medical Service in Edinburgh will take place, as formerly, in the Caledonian United Service Club, Shandwick Place, on the last Friday in May next, under the presidency of Sir Alexander Christison, Bart.

This early intimation is given so that it may reach those officers who contemplate taking furlough previous to their departure from India. Those wishing to be present should write to Brigade-Surgeon James Arnott, 8, Rothesay Place, Edinburgh.

Royal Edinburgh Asylum for the Insane.

The annual meeting of the Corporation of the Royal Edinburgh Asylum for the Insane was held in the City Chambers, Edinburgh, on Monday, February 22nd, the Lord Provost presiding.

Dr. G. M. Robertson, the physician superintendent, submitted his first annual report for the year 1908.

At the beginning of the year the total number of patients in Craig House and the West House, the two establishments which form the Royal Edinburgh Asylum, was 743 (including 10 on probation), and on December 31st it was 752 (including 11 on probation). The admissions were 239 (106 men and 133 women). The total number of patients under treatment was, therefore, 982. The number discharged was 166 (89 men and 77 women).

The number of patients who died was 64 (29 men and 35 women). The average number of patients resident during the year was 733 (356 men and 377 women).

The admissions were 78 less than in 1907. During the last three years the admission-rate had been steadily falling, owing to the fact that the Parish Council of Edinburgh had every year been sending a larger number of its mental cases to Bangour Village Asylum and fewer to the West House. Edinburgh patients still continued to be admitted to the West House, as the managers were under an obligation to find accommodation for 105 patients belonging to that parish till the year 1914.

The number of private patients admitted was 132, or 3 less than last year, which was the highest in the history of the institution. These admissions were chiefly to the intermediate department of the West House, where accommodation and treatment were provided at the standard rate of £45 a year. This department was one in which the managers had always taken the greatest interest. They had dealt with the patients undergoing treatment in it in the most generous manner, and it was calculated on that account that there was a loss sustained in its management last year of £3 a head. This special interest was due to the fact that this department provided accommodation of a comfortable character for the afflicted members of families of the educated and professional classes of only moderate means. These families were quite unable to afford to pay the considerably higher rates charged at Craig House, and patients of this class would suffer in many ways if placed for treatment among rate-paid patients of a different social position. Separate accommodation to meet this want was only found in the Royal Asylums of Scotland, but up to the present time the extent of this accommodation had not been sufficient to meet the demands. Owing to the removal of the patients belonging to the parish of Edinburgh, adequate space was now available for this purpose at the West House, and this was proving a benefit to a most deserving class who were promptly taking advantage of the available accommodation. In providing this accommodation the managers felt that they were loyally carrying out what was one of the primary objects of the founders of the institution—"to extend the benefits of the institution to such persons as are in circumstances of indigence," but who are above pauperism. The managers were anxious that the existence of this accommodation should be as widely known as possible throughout Scotland to those whom it concerned.

With regard to the character of the cases admitted, Dr. Robertson made the following observations:

There were sixteen men and ten women admitted who were diagnosed by the medical officers to be suffering from alcoholic insanity, being 10.8 per cent. of the total admissions, a proportion which compared favourably with previous years. A more remarkable feature was the fact that eleven persons were admitted suffering from post-influenzal insanity, being nearly 5 per cent. of the total admissions, and 42 per cent. of the admissions directly due to alcohol. The poison produced by the influenza microbe was recognized by mental physicians to have most injurious effects on the functions and tissues of the brain and nervous system. As a rule these effects were not immediate, as the poison acted slowly by impairing the health and nutrition of the nerve cells, and after the patient had been out of sorts for a fortnight, a month, or even much longer, the mechanism of some nervous function or other broke down. These nervous after-effects were legion, and fortunately in only a few cases did they result in complete mental derangement. The extent of the mental, physical, and material damage, indirect as well as direct, sustained by the nation as the result of influenza could only be realized by comparing it with that produced by excessive indulgence in alcohol. For one patient sent to the asylum there were scores who were incapacitated, and the ill-health of these was a source of misery to themselves and, if they were breadwinners, of consequences for their families as serious as would have been the case had the head of the household been a drunkard. It would have been better for the country had an epidemic of cholera passed as a scourge through the land and then left it, than that it should be afflicted as it was by recurring outbreaks of influenza.

The percentage of recoveries was 31.3 of the total admissions—considerably below the average. Since 1900 the total number of deaths was 64, which was less than for twenty years. The percentage on the average number resident was 8.7. The treatment of consumption was being carefully carried out on modern lines. It was a disease that could be kept thoroughly under control in an asylum. General paralysis caused 18 deaths—14 men and 4 women.

Reference was made to the general history of the institution, the retirement of Dr. Clouston, that enduring monument of his régime, the Craig House. The inception of the idea to build a great mental hospital designed on modern lines for the accommodation of patients able to afford high rates of board, and desirous of getting the very best care and treatment that could be obtained, showed great boldness as well as remarkable foresight. The manner in which this idea was carried out was even more remarkable. The resignation of Mr. Gregory, head attendant on the men's side, had allowed the new arrangement of a lady superintendent undertaking the responsibility for the supervision of the nursing and domestic arrangements of the institution. Miss Wise, lately matron on the ladies' side, had been appointed to this. A nurse's home was to be arranged at the West House. The work being done at the laboratory of the asylum was referred to. Dr. Winifred Muirhead had been appointed Pathologist. The lactic acid bacillus treatment had been employed in treating those chronic cases the result of a faulty chemistry in the disease, and more frequently produced by micro-organisms which have invaded the body. In association with Dr. Dods Brown, Dr. Ford Robertson, the pathologist of the Scottish asylums, had obtained further support for his hypothesis of the causation of general paralysis.

Ireland.

[FROM OUR SPECIAL CORRESPONDENTS.]

ROYAL COLLEGE OF SURGEONS.

THE annual dinner of the Royal College of Surgeons in Ireland was held on Saturday, February 20th, when the chair was occupied by Mr. J. Lentaigne, the President. His Excellency the Lord Lieutenant honoured the proceedings by his presence, and there was a distinguished general company. The occasion was made specially interesting by the presentation to Professor Alec Frazer of a silver box containing a handsome cheque from the college staff, in commemoration of the completion of twenty-five years' work as teacher of anatomy. The President said he was the trusted friend and counsellor of the students, and had a wonderful gift of imparting knowledge and of controlling and directing his pupils. Professor Frazer was enthusiastically cheered in acknowledging the honour. Many toasts were proposed, and among the speakers were the President, His Excellency Lord Aberdeen, Mr. R. H. Woods (Vice-President), Mr. Justice Kenny, the Provost of Trinity College, Rev. T. A. Finlay, S.J., Sir Arthur Chance, and the President of the Royal College of Physicians.

Canada.

TORONTO MILK COMMISSION.

A COMMISSION has been appointed by the Academy of Medicine, Toronto, to obtain, if possible, a supply of milk of a high standard of purity, to be known as certified milk; the requirements for this standard are as follows:

1. The herd milk shall contain 12 to 13 per cent. of total solids, of which 3½ to 4½ shall be of butter fat.
2. It shall contain no colouring matter, preservatives, or other foreign substances.
3. It shall be free from blood, pus, or disease-producing organisms.
4. It shall be free from all disagreeable odours and tastes.
5. It shall not have been heated in any way, nor frozen.
6. It shall be derived only from cows which have been tuberculin tested by the veterinarian of the Commission before entering the herd, and have been found healthy, and which shall have been so tested every six months thereafter.
7. It shall have been cooled to 45° F. within one half-hour after milking, and shall be kept at not higher than 45° F. until delivered.
8. It shall not be more than twenty-four hours old when delivered to the consumer.
9. It shall not contain during the months of June, July, August, and September more than 10,000 bacteria per cubic centimetre, as shown by a forty-eight hour culture on nutrient agar medium at 37° C., nor in the remaining months of the year more than 5,000 bacteria per cubic centimetre as demonstrated by the same tests.
10. The veterinary inspector and the physician of the Comission shall each month inspect the herd, the health of the employees, and the hygienic conditions of the dairy generally.
11. All bearers of a physician's prescription for certified milk shall be deemed preferred customers.

A circular of recommendations has been issued to the dairymen of the city and vicinity, pointing out the method to be followed to meet these requirements. The stables and barnyard are to be kept clean, light, and well ventilated, with a constant supply of good water; the cows are to be groomed, and the inside of the thighs and the udders washed before milking; all milk from cows twenty-one days before and seven days after calving is to be rejected. The milkers are to be personally clean, and in case of illness in the person or family of any employee, he

must absent himself until he procures a doctor's certificate that it is safe for him to return. The hands are to be well washed and dried before milking, and light-coloured, washable garments are to be worn; children under 12 years of age are to be excluded from the stables, owing to their liability to contagious diseases; also cats and dogs, which may frighten the cows. The first few streams are to be discarded from each teat, and the milk pails shall have a diameter not exceeding 8 in. at the opening. All dairy utensils, including bottles, are to be cleaned and sterilized by washing in hot water and soda with a brush, and then sterilized with flowing steam for one hour or with steam under one atmosphere for fifteen minutes. The sterilizing room is to be separate from the bottling and cooling room. The bottles, after filling, are to be capped with a sterilized paper disc, bearing the seal of the Commission and the date of production.

In order that the dealers and the Commission shall be kept informed of the character of the milk, specimens will be taken at random from the day's supply once a month or oftener, and subjected to examination by the experts of the Commission. The Commission will make inspection of certified farms at frequent intervals, and reserves the right to change its standards in any reasonable manner upon due notice being given to the producers.

The Commission is ready to certify to the milk of any producer who fulfils the above standard to its satisfaction, and already two large dealers have accepted the responsibility. The Academy of Medicine in appointing the Milk Commission, is actuated by a desire to obtain for the children and patients under their care a milk beyond suspicion; the motives of the Commission are disinterested, and its members forbid to themselves any pecuniary reward.

Special Correspondence.

VIENNA.

Scarcity of Water.—Conditions in the Army Medical Corps.—A Hospital Strike.—Teaching of Social Medicine and Medical Ethics.

THE abnormal conditions of weather and climate which have prevailed in this country since September, 1908, have had a very unpleasant effect on the water supply of the capital. In normal times Vienna requires about one and a quarter millions of hectolitres of water, or about thirty millions of gallons, per day. This quantity of water is supplied by a number of mountain springs coming from the group of the Schneeberg, about 6,000 ft. high. An aqueduct, some 78 miles long, brings the water to Vienna. To this abundant supply of fresh, cool, and healthy water the absence of typhoid in Vienna is ascribed. In the months of September to December the rainfall for this particular district was not even a third of that coming down there as a rule, and when frosts set in at Christmas time the water supply was still more interfered with. The store of water in the reservoirs in Vienna had to be drawn upon; the water pipes in the houses had to be throttled; the use of water was diminished as much as possible, so that the daily requirements were brought down to about 50 per cent. of the normal. But now even this amount does not flow into Vienna, so that the city is suffering from a water famine. The water necessary in hospitals and other similar institutions was not cut off, but in many houses and in industrial buildings this had to be done. Luckily the weather has within the last forty-eight hours turned very warm, so that the reservoirs and the houses will soon get their full share of water again.

The recent warlike rumours turned public attention to the fitness of the army, and the complaints against the administration of the Army Medical Corps have been publicly discussed in a very animated way. The object lessons taught by the war in Eastern Asia have shown sufficiently that fitness for war includes also fitness of the medical provisions. But in the army racial and religious prejudices have been allowed to interfere with promotion, so that within the last seven years 747 surgeons have decided to throw up their commissions. On the other hand, the pay of the medical corps has remained stationary for twenty years notwithstanding the increase in the cost of living. Private practice and appointments offer greater attractions to the young doctor than the military career does at present. The result is that there is a lack of medical officers in the army, believed to amount to 500 or more. Every effort is now being made to remedy the disgraceful and dangerous state of affairs.

A "hospital strike" lately gave rise to much comment in medical circles of the city. In one of the smaller public hospitals the medical staff had complained several times to the managing board about the administrative work and the non-medical duties they were expected to perform. Lately the quality of the food had also become, on account of the cheeseparing policy carried out by order, rather of a low kind, so that the whole medical staff refused to continue their work and "struck." This had the desired effect. The public scandal and the indignation at such a method of economy quickly put things right, and the food will in future be controlled in the kitchen by a doctor. The strike has shown once more the good effect of co-operation amongst medical men.

In one of the latest meetings of the Vienna Medical Council (Aerztekammer) Dr. Grün proposed that a petition should be presented to the Government asking for the establishment of special chairs of social medicine at the Vienna University. He suggested that the student should be instructed (1) in the relations between the doctor and the general public, the authorities, and the legislature; (2) the importance of medical organization and the duties of the practitioner towards it. The main subjects should be: Physician and patient; the rights and duties of the physician in regard to his patient and the public; the duties of the physician in regard to his brethren in private practice (instruction in medical ethics); rights and duties of the doctor in relation to contract practice and sick clubs, insurance companies, and accidents; the relations between old-age and invalid pensions and private practice. Special care should be devoted to medical testimonials and examinations; the duties of the practitioner towards the State in infectious diseases and occupation or industrial diseases. The important subject of social hygiene should also form part of this study. The latter would comprise the history of social hygiene, social statistics, and special hygiene (of schools, of building, of food, of epidemics). The suggestion was received with great applause, and will be made the subject of general discussion.

Correspondence.

THE BIO-CHEMISTRY OF CYTOLYSIS.

SIR,—In the interesting account published in last week's JOURNAL of the Morison Lectures, by F. W. Mott, M.D., F.R.S., F.R.C.P., on the Pathology of Syphilis of the Nervous System in the Light of Modern Research, a passage occurs in which Dr. Mott rightly draws attention to the great importance of the cell lipoids, not only in the normal life of the cell, but in the bio-chemistry of such reactions as the Wassermann test for syphilis and in the neutralization of cobra venom by lecithin, which is here the active constituent of the lipoid.

While subscribing in full to this opinion, I should like to be allowed to point out that there is an alternative view to that which supposes that the lipoids owe their activity to the formation of an osmotic membrane, consisting of a mixture of lecithin and cholesterin around the cell, which conserves the cell contents and preserves a different composition from the surrounding plasma.

It has been shown in detail by Moore and Roaf (*Bio-Chemical Journal*, vol. iii, p. 55, 1907) that any such inert membrane cannot give rise to the distribution of salts and colloids within and without the cell, which naturally occurs; that it can only prevent passage of dissolved substances to and fro, but cannot explain accumulation of cell products in higher concentration within the cell than in the plasma.

The alternative view, for which evidence is given in the paper quoted, is that cell proteins and cell lipoids are unsaturated bodies capable of entering into a labile equilibrium with the other cell constituents and with each other. The amount of such loose physico-chemical combination varies up and down with the cellular activity

and changes in the environment from moment to moment, and there is thus a flux of chemical energy going on all the time in a system which is stable though all the time undergoing change.

This view is far more compatible with the reactions shown to occur with the isolated lipoids and cobra venom, or of the lipoids, such as lecithins and oleates, and the antigen of syphilis, than any membrane hypothesis, for here there is no doubt whatever of the existence of chemical reaction.

The writer has shown by experiment that lipoid matter as a membrane does not possess the osmotic properties theoretically assigned to it by Overton, and it is far more probable that the lecithin and other fatty bodies are distributed all through the cell substance, in combination with the haemoglobin forming a cement substance for it, than that they merely form a superficial stroma or membrane for the corpuscle. There is no doubt whatever that the stroma left behind when the haemoglobin escapes is not lipoidal in character, this other stroma of lipoid character acting as an osmotic membrane is a theoretical myth which has never been demonstrated by staining or otherwise.

The part played by lipoids both in health and in disease is one of large importance, which is just now being gradually realized, but it is as active chemical constituents of the cell of an unsaturated nature and therefore capable of combining chemically with proteins, toxins, anaesthetics, drugs such as digitalin and saponin, and many other physiologically potent substances, and not merely as inert membranes, that this class of bodies exercise their influence.

This is shown by their similar chemical activity when entirely dissolved out of the tissues so that they cannot in any sense be acting as membranes, yet they still neutralize cobra venom or syphilitic antigen.

The nature of the reaction between these lipoids, the immune body, and the complement of serum is a biochemical problem of the profoundest interest.

Work which I have recently carried out on the nature of the reaction induced by the oxidizing ferments or peroxidases led me to the view that the lipoids might be reduced substances, and the complement an oxidizing body, and experiments conducted on this basis by Dr. F. P. Wilson and myself bearing on the haemolysis of blood corpuscles by reducing and oxidizing agents have yielded most interesting results, of which the following is a brief preliminary account:

All naturally occurring lecithides are unsaturated and capable of taking up oxygen, for all contain the unsaturated oleic acid. Also it has been shown by Sachs and Altmann that sodium-oleate binds complement in presence of syphilitic serum similarly to the antigen of syphilis; further, such oleins are set free in nervous lesions, and would be present in syphilis and in general paralysis.

Acting on this hypothesis we have tested the action of hydrogen peroxide as an oxidizing agent and ammonium sulphide as a reducing agent upon washed blood corpuscles, both reagents being used only in extreme dilution, and we have found that the oxidizing agent produces haemolysis, while the reducing agent inhibits and entirely prevents haemolysis even in presence of extremely active haemolytic serum.—I am, etc.,

BENJAMIN MOORE,
Bio-Chemical Department, University of Liverpool.

February 22nd.

THE SERUM DIAGNOSIS OF SYPHILIS.

SIR,—In connexion with Dr. Mott's remarks in his recently-delivered Morison Lectures on the Wassermann test, may I be permitted to point out that Dr. Porges, one of Professor v. Noorden's assistants, has, conjointly with others, devised a method of the serum diagnosis of syphilis which he claims to be an improvement on that of Wassermann? The test, as I saw it performed, was as follows:

1 to 2 c.cm. of blood are taken from the finger and transferred to a small test tube. The corpuscles are allowed to sink, and the upper serous portion is drawn off. This is then centrifugalized, and the serum again drawn off and heated in a water bath for half an hour to a temperature of 56° C. By means of a finely-graduated pipette, 2/10 c.cm. of the heated serum is transferred to a test tube A, and a similar quantity to a second test tube B (control). To test tube A is added 2/10 c.cm. of a freshly-prepared solution of sodium glycocolate (1 per cent. of the salt in distilled water), the two fluids being mixed by carefully inverting the tubes a few times, and to test tube B is added a similar quantity of normal saline solution. The two tubes are kept at the ordinary temperature of the laboratory for about twenty hours. In the event of a positive reaction, at the end of this time a flocculent precipitate will be observed in test tube A floating in the upper portion of the fluid, the fluid in test tube B remaining, on the other hand, quite clear.

It is not maintained that the absence of a reaction (= negative reaction) is proof positive that the patient experimented on has never had syphilis; it is, however, contended that a positive reaction is definite evidence of past syphilitic inoculation; 60–70 per cent. of tabetics give a positive reaction and 80–90 per cent. of general paralytics. Dr. Porges kindly demonstrated this test to me, and I had the opportunity of seeing the characteristic flocculent precipitate in one of the laboratories of the Allgemeine Krankenhaus twenty hours after the initial processes had been completed. The occurrence of this precipitate was eloquent indeed, for here we had evidence, visible to the naked eye, that the blood of a syphilized individual many years after the primary inoculation differed from normal blood in a very definite way. Dr. Porges maintains that this test is not only simpler and more easy of application than the Wassermann test, but that it gives better results. I found, however, that the two medical residents in charge of the syphilis block at the Stadtische Klinic at Frankfurt placed greater reliance on the Wassermann method.—I am, etc.,

London, W. HARRY CAMPBELL.

PULMONARY TUBERCULOSIS IN CHILDREN.

SIR,—I have the good fortune to live in the district covered by Dr. Williams as Assistant Medical Inspector of School Children. Three of these so-called phthisical cases excluded by Dr. Williams from school have appeared with their mothers at my "out-patients" at the Kidderminster Hospital, bearing a letter stating that the child has tuberculosis of the lungs and needs medical attention, the mothers not unnaturally being in a great state of perturbation. In not one of these cases could I find any physical signs of tuberculosis of the lungs whatsoever, and I do not think that I belong to that class of medical men which from Dr. Williams's paper one infers exists, and which Dr. Walter Carr has boldly crystallized into words. These are the only three cases, so far, that I have seen that have been excluded by Dr. Williams for this so-called "consumption of the lungs."—I am, etc.,

Kidderminster, Feb. 23rd. BERTRAM ADDENBROOKE.

SIR,—Dr. Mary Hamilton Williams, in her interesting paper on Pulmonary Tuberculosis in Children, in the BRITISH MEDICAL JOURNAL of February 13th, says: "The number of children on the rolls in the London schools examined was 165,915. Therefore, the probable number suffering from phthisis among these was . . . 7,164—that is, it is probable there were roughly 7,164 children suffering from phthisis in the schools examined."

But why "in the schools examined"? Why not in bed or at the hospitals? Not every child on the roll is "in the school." I have not got the London figures before me, but, in my own county area of Staffordshire, the children "in the schools" are commonly only 90 per cent. or 93 per cent. of those "on the roll." Thus, last month we had 81,341 on the roll but only 73,757 in the schools—a difference of 7,584. If Dr. Williams's statistical inferences are correct, and if, further, we in Staffordshire have the same proportional number of phthisical children as her figures seem to show for London—namely, about 3,500—we should have an ample margin of absentees to account for them.—I am, etc.,

Stafford, Feb. 20th. JOHN PRIESTLEY.

SIR,—In reading the paper on Pulmonary Tuberculosis in Children, by Dr. Mary Hamilton Williams, in the BRITISH MEDICAL JOURNAL of February 13th, I was so surprised to find that she considers phthisis is one of the most common diseases of children, that I immediately looked up my notes on the subject. I am quite convinced that it is one of the rarest diseases of childhood. Among my out-patients at the General Hospital, and at the Children's Hospital, Birmingham, I have taken the last

8,000 cases of children under 15 years of age, whom I have examined, and find that I have diagnosed phthisis in only 15 patients. Of these, 4 have already become quite well again, and another has greatly improved, so that I consider my diagnosis was wrong in all five; this reduces the number to 10, or 0.125 per cent. There were 11 others which I thought were doubtful cases of phthisis on my first examination. One appeared later to be a case of bronchiectasis, and all the others which I have not lost sight of completely recovered. There were other cases of tuberculosis of the lungs, but in them it was associated with tuberculous lesions elsewhere in the body, or the condition followed pneumonia which was tuberculous from the beginning.

There were about 12 cases of general tuberculosis, but I do not know the exact number, as they were admitted directly as in-patients; there were 2 cases of tuberculous peritonitis, which had undoubtedly tuberculous foci in the lungs; and 3 cases of bronchopneumonia which I considered to be tuberculous. Of course, a large proportion of these children whom I examined were below the school age, but, if so small a number appear to have tuberculosis of the lungs in children who are ill and are brought to a hospital, surely a much smaller number suffering from this disease should be found in school children of whom the great majority are in good health?

Naturally, errors in diagnosis may be made, and so I turn to my *post-mortem* notes for confirmation. While Pathologist at the General Hospital, Birmingham, I performed myself 244 *post-mortem* examinations on children under 15 years of age, and have attended many *post-mortem* examinations since. Of the 244 cases, there were 13 of general tuberculosis in which the lungs and bronchial glands were affected. In most of these the condition of the lungs was one of acute miliary tuberculosis, but in 4 there were many small cavities and caseating foci. There were 3 cases of tuberculous meningitis, in which there were caseating foci in the lungs and bronchial glands. In 1 case of cerebral tumour of tuberculous origin there was one caseating mass in the apex of the right lung, and the kidneys and the mesenteric glands were tuberculous. There were 2 cases of tuberculous bronchopneumonia, in both of which the bronchial glands were affected, and in one the mesenteric glands. There were, therefore, 19 cases of tuberculosis of the lungs, but in all except 2 the disease was disseminated widely in the body. I should add, however, that phthisis is not usually admitted into the General Hospital, but when we consider how frequently we find evidence of recent or past phthisis in the *post-mortem* examinations of adults, and that it was only in 2 cases out of 244 of children under 15 years of age that tuberculous lesions were found in the lungs only, and not disseminated over the body, we must conclude that phthisis is a most rare disease in childhood. The 2 patients with tuberculous bronchopneumonia were acute cases, and did not present the condition which is usually spoken of as phthisis.

Dr. Mary Hamilton Williams calculates that there were 165,915 children on the rolls of the London schools examined, and that among these the probable number suffering from phthisis was 7,164. This means that 4.318 per cent., or 1 in 23, of school children suffered from phthisis in these schools, whereas my figure is 0.125 per cent., or 1 in 800, for all children up to 15 years of age who attended the out-patient department of a general and a children's hospital. I therefore record my figures because they seem so contrary to the opinion of Dr. Mary Hamilton Williams, and because they appear to me to prove that phthisis as observed in the adult is one of the rarest diseases of childhood.—I am, etc.,

Birmingham, Feb. 20th. JAMES E. H. SAWYER.

THE APPLICATION OF MENDELIAN RULES TO HUMAN INHERITANCE.

SIR,—"If," says Dr. Drinkwater, "there had been no children born to the last abnormals . . . without doubt Mendelians would have considered Nettleship's chart as conforming to Mendel's rules."

I do not feel in a position to say what Mendelians would have considered. Personally I should have said that this astounding association of the last abnormal with sterility was not in accord with any known law of Mendel, and, until an explanation of it was forthcoming, that it was idle to talk of any proportion as near enough to that required by theory. It would have upset Mendelian theory by the simple fact that it postulated a special gametic constitution for the last abnormal.

Dr. Drinkwater asks me to furnish my explanation of what he terms the striking fact that of 98 abnormal parents nearly one-third had normal children only. My reply is that such a fact is only "striking" when you have demonstrated that it does not occur in other forms of pathological inheritance. It is necessary to remind Dr. Drinkwater that it was he, not I, who asserted that night-blindness closely obeyed Mendelian rules; that it was he, not I, who without any public acknowledgement of the fact calculated proportions by a non-Mendelian rule of his own; that it is he who is, not I who am, called upon to explain what he has but I have not yet termed a "striking fact."

Dr. Drinkwater now agrees apparently with the view I thought he held from the beginning, namely, that prepotency may change not only with the mating, but even *in the mating*. There may, in my opinion, be much or little to be said for that view; all I would suggest is, that it is wholly incompatible with the theory of the pure gamete, and with the orthodox Mendelian's principles of dominance and quantitatively definite segregation which are hardly likely to be discarded by professed Mendelians. Above all from the standpoint of medicine, it would render Mendelism useless as a method of prediction.

Dr. Drinkwater tells us now with regard to this night-blind pedigree that there is no escape from the conclusion that some new factor must have come into operation where Mendel's rule begins to be inapplicable. I do not quarrel with this statement, but I ask why was it not distinctly stated in the original lecture (as printed in this JOURNAL), where the night-blind pedigree was described as giving the orthodox Mendelian ratio?

We are not at the bottom of the inheritance of night-blindness. There will, I feel quite certain, be other difficulties to be cleared up about change of dominance, when we have before us ten or a dozen pedigrees. Meanwhile I would return to my original standpoint—the urgent need to put aside controversy as to theory and patiently collect and publish raw material. In spade work of this kind Dr. Drinkwater has done excellent service, and as far as the inheritance of pathological characters in man is concerned this is the work which must precede all profitable analysis.—I am, etc.,

University College, London, Feb. 19th. KARL PEARSON.

SIR,—Under this title a discussion has been recently proceeding between Professor Pearson and Dr. Drinkwater. I have followed it with some interest. Professor Pearson may not intend to mask the fundamental issues which arise from the discussion, but, none the less, that is what he has accomplished. Some day the mathematician will succeed in learning that living structures are not dead marbles, and that mathematical conceptions and formulae which may be legitimately applied to the latter have not always a valid application to the former. I will, therefore, meet Professor Pearson on his own battle-ground, and there I extend to him an invitation. He says:[1] "In fact, the odds are several millions to one against Nettleship's material being a sample of a population obeying Mendel's rule." No doubt it is easy to make such a statement and to create an imposing impression; and it is, doubtless, just as easy to believe that a faith in the infallibility of authority will cause it to be accepted without further question. But I am sorry to say that I am not one of the faithful. Indeed, I am very sceptical, and therefore I call for proof. I am acquainted with some of Professor Pearson's mathematical methods and conclusions, and I have learned that sometimes among the mathematical formulae there is hidden away a great deal of very unmathematical assumption. Now, the outcome of any problem in probability depends upon the accuracy of our knowledge of the conditions and factors upon which the probable event depends. It will be of very great interest, therefore, if Professor Pearson will vouchsafe to let us into the inner sanctuary of those intellectual processes by which he arrives at a knowledge of these conditions. In

[1] BRITISH MEDICAL JOURNAL, December 5th, 1908, p. 1720.

other words, we would all like to see and follow the various steps in this problem in probability by which this sweeping conclusion has been reached. It will require, I think, another mutational Laplace to evolve the needful processes of demonstration.—I am, etc.,

GEO. P. MUDGE.

Biological Department, London Hospital Medical College, E., Feb. 17th.

THE COLD-BATH TREATMENT OF TYPHOID.

SIR,—In the JOURNAL of January 16th, p. 185, there is a letter from "X." which I have read with great interest, and wish to record my experiences with cold sponging of typhoid cases for the last ten years on Mount Lebanon.

I have never tried the cold-bath treatment on Mount Lebanon because I found the system so troublesome and impracticable in any ordinary private house. Although I cannot give your correspondent satisfactory statistics of all the typhoid cases I have met with, I am convinced to say that cold sponging does replace the cold-bath treatment of typhoid, and is efficacious in every way. Last month I had under my care fifteen cases of enteric fever; all were treated with cold sponging twice a day, and all recovered.

It may interest your correspondent to notice that my usual internal treatment for typhoid cases is tincture of iodine and salol or beta-naphthol.—I am, etc.,

Beyrout, Syria, Jan. 21st. A. J. MANASSEH.

THE DRAFT CHARTER.

SIR,—The letter from the Cape of Good Hope in Saturday's JOURNAL calls for strong protest from those who have been pressing for amendment of the draft Charter before it is accepted by the Privy Council. The writers have no right to charge us with a desire to wreck the Charter. We are as wishful as they are for the powers which they demand, and only claim that the rights of the individual member should be safeguarded, and in other less laudable objects that the voice of the Association should be tested by an efficient Referendum. With regard to the first claim, they forget that the postal vote is to be granted to the Colonial members and denied to us. Then, with regard to the second, let us recall the vote they gave almost unanimously against the proposals of the Representative Meeting in the Referendum of 1907. The Eastern Provinces at the Cape were solid against these proposals, and the Western Provinces did not vote at all. Only two of the ten Divisions in the whole of the Colonies supported the Representative Meeting. No fewer than twenty-two Divisions held no meeting, or recorded no vote. In these circumstances it is hardly reasonable that they should seek to hurry on legislation which they so recently condemned. It is also highly improper that they should fasten the charge of obstruction on those who are claiming privileges which they are to enjoy.

As usual, the threat of secession from the Association is again brought forward, as it was in July, 1906, and in May and July, 1907, as a reason for dispatch. We have never condescended to that line of argument, though the risk is far greater in our case. We have even been invited to fall away as "leaves," and almost threatened with expulsion.

Is compromise not possible? Dr. Taylor's letter of January 23rd, p. 247, deserves serious consideration. If the Charter is granted in its present form, there will be discontent in the Association, if not disruption. Without committing anyone else, I think his suggestion contains the germs of an amicable arrangement. There are subjects which demand discussion in Division meetings, and others which need none. If these questions were classified by mutual agreement, and the latter submitted to a postal vote, if a statutory quorum were fixed for all meetings at which delegates were elected or instructed, and if the Council were granted more unfettered power in taking the Referendum, the unanimity of the Association might be secured in favour of the Charter.

It may be that the members of the Association are prepared to accept the Charter as it is, but the vote of less than 10 per cent. is not decisive, and it is all the Representative Body has at its back, less the Divisions which voted against it in the 1907 Referendum. We believe, on the contrary, that if the members were polled individually a large majority would support our demand. We desire to test the true feeling of the electorate, and it shows little confidence in the strength of their case that the demand was rejected by the Representative Body.

Even if it involve a little delay in the granting of the Charter it would be a momentous gain to the Association if we could arrive at an amicable compromise. We recognize the enormous amount of labour and skill in the drafting of the Charter, and in no way impugn the sincerity of its authors, and it would be far more in accordance with our wish to bless than to ban it, but we will not agree to the extinction of the right of franchise to the member who honestly is unable to attend the meeting of his Division, or the right of the Council to refer, with a fair prospect of success, any matter which it believes is not in accordance with the true interests of the Association.—I am, etc.,

Edinburgh, Feb. 22nd. A. WALKER.

THE REPORT OF THE PUBLIC HEALTH COMMITTEE.

SIR,—The medical officers of health of small districts have been on public view now sufficiently long to judge of their efficiency and usefulness. By their works shall we know them. Statistical results tell their own tale. The health record of small areas compares most favourably with that of large areas. What advantage, then, would ensue from a public health point of view in doing away with the intimate local knowledge of the local medical officer of health? He is always on the spot, ready to deal promptly with infectious cases. A whole-time man cannot be in two or three places at once. Moreover, ratepayers are beginning to kick against the tendency of over-centralization, as they know that their local needs are best understood by the man whose daily round takes him all over the district, and whose interest is identical with the health and prosperity of the place wherein he earns his livelihood.

The bogey of the medical officer of health bagging other local practitioners' patients has long been laid to rest. This and the other delusion—that the medical officer of health is afraid to do his duty for fear of being unpopular—are mutually destructive. There may be general practitioners so morbidly jealous that they view with jaundiced eyes even the obituary notice of a fellow practitioner. But we need not legislate for envious freaks.

The British Medical Association will be doing a useful work if it helps to obtain greater security of tenure of office and automatic increase of salary, as obtains in all other public services and in most private employment. Let its work be constructive, conservative, consolidating, and strengthening, not destructive and disheartening to the local medical officer of health.—I am, etc.,

AUGUSTUS H. BAMPTON,
February 16th. M.O.H. Ilkley.

THE CONFERENCE ON FRIENDLY SOCIETIES AND THE MEDICAL PROFESSION.

SIR,—Having always been intensely interested in the question of "contract" practice for medical men, I make that my excuse for putting pen to paper, as the recent conference appears to show that some members, at any rate, of our profession have the courage of their convictions.

The one fact that stands out as a source of never-ending astonishment to me is, that *any* medical man worth his salt should do *any* work on a contract basis. For what is a medical man? He is, I take it, a man who says in effect—You, or yours, sir, are unfortunately ill and suffering. Very well, I will use my utmost endeavours to get you well in the shortest possible time, bringing to bear upon your case thought and whatever knowledge I possess (nor did I acquire habits of thought, or knowledge, without very hard work and much money spent), and your good health—strange as it may seem—is my earnest desire. For this I expect, as every other man does who uses his brains, a reasonable fee in order to live.

But when a man (or body of men) comes to a doctor and says, "I will give you so much a year to attend me (or me and my family, or us), whether we are sick or not," in my opinion the doctor who accepts such an

offer forgets what he has been educated for, forgets that he and his friend are "human," forgets what the nature of a bargain is. The whole thing is so absurd that it really seems hardly worth while to labour the point. I am told, or have been told often, that the English working man stands as the exponent of "fair play." A fair day's work and a fair day's pay! I suggest, Sir, that he often fails to grasp the first principles of fair play. Now, what is the remedy for all this?

I see in your issue of February 13th a letter from "One Who Tries to Play the Game." (What does this signature mean, I wonder?) He is right. "Much talk and little treatment" is at present the trouble (and always has been). Then he hits the nail on the head when he says: "The education of the public may be achieved in time if we reform within the profession." Exactly! I have been wondering of late what precisely "a humble member of the rank and file" gains by belonging to the great British Medical Association? The discussion on the proposed "Royal Charter" has been somewhat entertaining, even if one has been inclined to whistle and stick one's tongue in one's cheek! There is certainly food for thought. In my own humble sphere I have always said to myself that I would rather starve or take up another profession than endeavour to increase a paltry enough income by accepting "contract" work. Are the body of the profession afraid, I wonder? I wonder also that they never even look at it in this light: That it is preferable to obtain a little more leisure—time to read, to think, to enjoy life, and last, but not least (most mundane and gross thought!), to eat—rather than accept a club or clubs to increase their income for work which they cannot possibly do well at such a price.

Finally, Sir, it may perhaps be worth while recording that I know of a branch club where recently it was proposed to pay the doctor on the principle of so much per visit and medicine. They agreed to try it on the doctor's terms. The first year of the experiment the club happened to benefit by the arrangement—but the doctor had less work.

One could say so many things on this subject; but I think I have said enough to show that it is we doctors who ought to "play the game," and gain a little respect in the eyes of the world by firm action. As Mr. Smith Whitaker rightly said at the conference, we want no favours; we want no money for work not done; nor is "money" everything.

Also, as a club secretary said to me once—not so long ago, when I was arguing the point with him—"As long as doctors are *fools enough*" (the italics are mine) "to be got to work for next to nothing of course we will get them to."—I am, etc.,

Brewood Staffs, Feb. 18th. FRANCIS J. GEOGHEGAN.

THE VACANT POLICE APPOINTMENT IN LIVERPOOL.

SIR,—Mr. Maxwell's letter in the JOURNAL of February 20th is perfectly accurate as far as it goes, but as it does not traverse any of the statements published in the JOURNAL of February 13th, it is not apparent why he wrote it at all. He has, however, omitted all reference to one important particular, namely, that within a year of the present medical officer to the B Division being appointed, at the close of 1895, at a salary commencing at £60 per annum, he (the medical officer) represented to the authorities that the salary was inadequate, and the authorities, recognizing the justice of his representation, forthwith raised the salary to £80 to commence, rising to £100 after five years' service. Will Mr. Maxwell explain for the benefit of your readers why, when making an authoritative statement, uninvited, in his official capacity, he chose to make no allusion to this important fact, and further, will he state the grounds on which "a commencing salary of £60, rising by increment of £20 to £80 after five years' service" is offered as an adequate salary now, whereas the Corporation declared by their action in 1896 that at that time the salary of the medical officer of the B Division ought to be £80, rising to £100 after five years' service?—I am, etc.,

Liverpool, Feb. 22nd. A RATEPAYER.

THE seventh Italian National Congress of Midwives will be held at Bologna in September next.

Medico-Legal.

ACTION FOR ALLEGED NEGLIGENCE.

AT the Sussex Assizes at Lewes on February 19th and 20th, an action in which Mr. Stranger and his wife, of Shoreham, sued Dr. C. Rawdon Wood, of the same place, for damages for the alleged negligence of the defendant in his attendance on Mrs. Stranger as her doctor was tried before Mr. Justice Bucknill and a special jury. Mr. E. E. Humphrys and Mr. J. Flowers appeared for the plaintiffs; and Mr. W. P. G. Boxall, K.C., and Mr. H. C. Dickens, instructed by Messrs. Hempson for the Medical Defence Union, for the defendants.

The statement of claim set out that the defendant, although knowing a miscarriage was feared, so negligently and unskilfully treated the female plaintiff that he failed to observe the significance of a discharge to which his attention was called, and that he failed to observe that she had miscarried, and continued to treat her afterwards as though she were still pregnant. Evidence having been called on both sides,

Mr. Justice Bucknill, in summing up, said that what the female plaintiff was entitled to from the defendant was such care and skill as was reasonable or ordinary in the profession. The jury must put aside the fact that the defendant was brilliantly qualified, because, in spite of that, he might yet be negligent. The jury must be absolutely sure that the plaintiffs had made out their case before they could find in their favour; if they had a doubt or anything short of positive certainty the defendant was entitled to their verdict. The jury, after a short retirement, gave a verdict for the defendant, and his Lordship said he heartily agreed; it was quite clear that there was no negligence. Judgement was entered accordingly for the defendant, with costs.

PARTNERSHIP AGREEMENTS.

A CORRESPONDENT writes that his partner, aged 70, has been away from his work on account of illness for the last four months, during which time he has personally done all the work. According to the partnership agreement, in the event of illness of either partner the other may employ a locumtenent at the expense of the absent partner, and if the illness is of longer duration than three months, notice may be given to the invalided partner to retire, and after such retirement he may not practise within a radius of five miles for a certain number of years. He wishes to know: (1) Whether, as he did all the work himself, he is not entitled to deduct from his partner's share £12 10s. monthly for having done the work without a locumtenent? (2) If a dissolution takes place, who is responsible for legal expenses? (3) Would he be acting too hardly in giving notice to his partner under the circumstances? (4) If a dissolution takes place, would his partner be justified in continuing to practise just outside the stipulated radius?

*** (1) Our correspondent is not entitled to deduct anything for the cost of a locumtenent not employed. (2) Each party should pay his own legal expenses. (3) If his partner is not willing to make any allowance to him for the extra work entailed by the illness, he is justified in exercising any rights he possesses under the partnership agreement. (4) After a dissolution the retiring partner would be entitled to practise outside the prescribed area.

Medico-Ethical.

The advice given in this column for the assistance of members is based on medico-ethical principles generally recognized by the profession, but must not be taken as representing direct findings of the Central Ethical Committee.

PUBLIC HOSPITALS AND PRIVATE NURSING.

THE Honorary Secretary of the Division in which the hospital referred to under this head last week is situated informs us that the circular letter was sent only to medical men in the neighbourhood, and that the reason for its issue was that a rumour had got about that probationers were sent out from the private nursing staff.

CANVASSING FOR A MEDICAL AID SOCIETY.

P. M. G.—It is impossible for us to say what view the General Medical Council might take of the facts if a case were brought before it. The description our correspondent gives suggests that the company is sailing very near the wind, and that a charge of canvassing for the benefit of the three medical officers might be established.

CLUB VACANCIES.

STORAX writes that a medical neighbour has recently died leaving no widow or any one dependent on him. He wishes to know whether "it would be in order" to approach one of the clubs lately held by the deceased with a view of succeeding him.

*** If the practice of the deceased is in the hands of his executors to dispose of for the benefit of his representatives, it would be more in accordance with medical ethics for our correspondent to wait till he was approached by the club, or an advertisement was issued for a successor.

Obituary.

JOHN LINDSAY STEVEN, M.D., F.F.P.S.G.,

PHYSICIAN TO THE WESTERN INFIRMARY, GLASGOW.

THE sudden death of Dr. John Lindsay Steven, on February 14th, came as a great shock to the medical world. It was known that he had been confined to the house for a few days, but no serious condition was suspected. Indeed, up to ten days before his death he had been actively engaged in clinical teaching at the Western Infirmary, but on February 11th he complained of feeling unwell, and absented himself from his infirmary work. Even then, however, he did not consider his illness serious, and refused medical assistance. Towards the end of the week he became acutely ill, and was found to be suffering from pericarditis, which had been added on to an old-standing though apparently unsuspected nephritis. The remedies tried unfortunately brought no relief, and early on Sunday he died.

At the time of his death he was in his 51st year. His father was a shipbuilder in Glasgow, and in due course the son went to the university. His college career was a long record of success, and on graduating in 1880 he headed the honours list, and was awarded the proud distinction of being the first recipient of the Brunton Memorial Prize, which is allotted annually to the most distinguished graduate in medicine.

Almost immediately after completing his terms as House-Surgeon and House-Physician in the Western Infirmary he was appointed University Assistant to the Professor of Clinical Medicine, and occupied this post for eight years, thus serving his apprenticeship as a clinical teacher under the late Sir Thomas McCall Anderson.

He early showed a fondness for pathological investigation, and for eight years he assisted the late Professor Coats during the summer session, in addition to doing clinical work in the wards. He was, therefore, well qualified in pathology when in 1890 he received the appointment of Pathologist to the Royal Infirmary, and became Professor of Pathology in St. Mungo's College. In addition, the University Court made him Lecturer on Pathology to the women students. The dual appointment brought with it much work, as he had to deliver two lectures each day.

But even when actively engaged as a pathologist Dr. Steven did not abandon clinical work. Since 1889 he had been attached to the dispensary staff of the Royal Hospital for Sick Children. In 1885 he was appointed to the dispensary staff of the Royal Infirmary, and continued to hold this position for ten years. After seven years of the arduous work as pathologist he was elected by the managers of the Royal Infirmary to be one of the Visiting Physicians. He then gave up pathology and devoted himself entirely to clinical work. He did not long sever his connexion with the university, as he was soon afterwards appointed Lecturer in Medicine to the women students at Queen Margaret College. He maintained the lectureship till 1903, when he gave it up on being appointed to represent the Faculty on the General Medical Council.

His success as a clinical teacher was great, and when, on the death of Dr. James Finlayson, he applied for the vacant wards in the Western Infirmary he was unanimously elected. During the short time for which he held office in the Western Infirmary he more than maintained his reputation as a clear and successful clinical teacher. He soon attracted large cliniques, and during his last session he had the second largest medical clinique. He had a great power of organization, and, as his teaching was based on an extensive and accurate knowledge of pathology, he was able to marshall his facts in a clear, convincing way, which made his lectures models of lucid exposition.

During his career, Dr. Steven occupied a very prominent position in local medical affairs. He became a Fellow of the Faculty of Physicians and Surgeons in 1889, and soon became an important member of that corporation. Since 1894 he had been a Member of the Council of the Faculty. After serving a number of years on the Library Committee in 1901, he succeeded the late Dr. James Finlayson in the position of Honorary Librarian. In 1903 it fell to the Faculty to elect a new representative to the General Medical Council, and, after a keen contest, the choice fell on Dr. Steven. Previous to this he had acted for seven years as one of the Representatives of the Faculty on the Committee of Management of the Scottish Conjoint Board. He was also very prominent in the local medical societies, and in 1905 was elected President of the Glasgow Medico-Chirurgical Society, and in the following year occupied a similar position in the Pathological and Clinical Society.

He acted as Examiner in Pathology and in Medicine at the University of Glasgow, and in Pathology at the University of St. Andrews. Recently he was an applicant for the Chair of Practice of Medicine in the University of Glasgow, and in support of his candidature submitted strong testimonials from many of the leading authorities in medicine. Throughout his whole professional career Dr. Steven was a prolific contributor to medical literature. He published an excellent work on *Practical Pathology* in 1887, and in 1892 wrote a book on *The Pathology of Mediastinal Tumours*, and in 1900 published his *Lectures on Clinical Medicine*. For eleven years he was joint editor of the *Glasgow Medical Journal*. His numerous contributions to that journal ranged over the whole field of medicine. In his application for the Chair of Practice of Medicine he was able to quote 102 articles contributed to various periodicals. Among the most important was that which in 1884 he submitted for his thesis for the M.D. degree. This work on the pathology of suppurative inflammations of the kidney attracted considerable attention, and obtained high commendation—the highest award conferred by the university.

Dr. Steven was a man of strong convictions. He was a lifelong abstainer and was keenly interested in anything connected with the movement in favour of temperance, and frequently appeared on public platforms as an advocate of total abstinence. His convictions sometimes brought him into conflict with those of others, but Dr. Steven enjoyed the warm respect of all who came into contact with him. He was a transparently honest man, and freely gave of his very best in whatever he attempted. He was an enthusiast and never spared himself. To those under him he was invariably kind and considerate. His loss will be deeply felt throughout Scotland. He was a man of wide learning, and enjoyed a well-deserved and well-founded reputation as a scientific physician.

Throughout his whole life he was a strenuous worker, and it seems cruel that he should have been taken away at the very time when he had attained the highest position in his profession and was about to enjoy the well-merited reward which his hard work had entitled him to. In him the West of Scotland loses a worthy representative, with an enthusiasm for his profession and a thorough knowledge of all questions and principles relating to it.

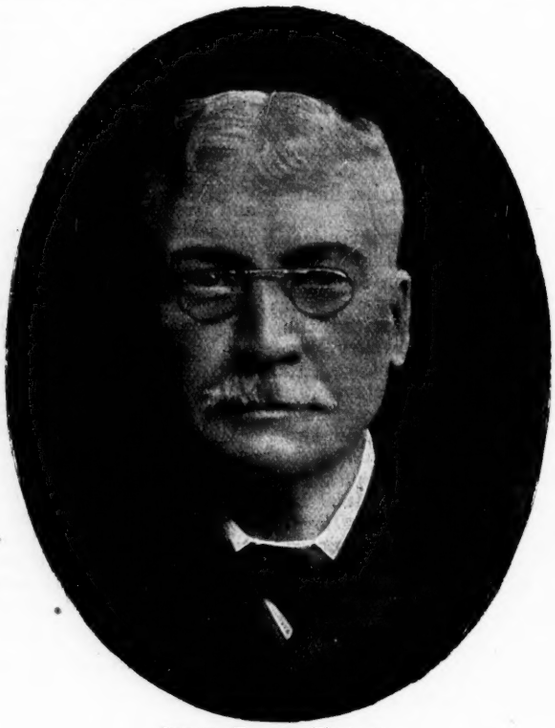
CHARLES HENRY FELIX ROUTH, M.D.LOND., M.R.C.P., M.R.C.S.,

CONSULTING PHYSICIAN TO THE SAMARITAN FREE HOSPITAL.

THIS veteran physician, who qualified for practice sixty-six years ago and had been a Doctor of Medicine of the University of London for sixty-four years, died on Friday last at the advanced age of 87. C. H. F. Routh was born in Malta on January 4th, 1822, during the residence there of his father, Commissary General Sir Randolph Routh, K.C.B., whom he subsequently accompanied to Canada, where he began his education. It was not until his fifteenth year that he came to England. He entered as an arts student at University College, London, and in 1840 joined the medical faculty, so that at the time of his death he had been associated with medicine for nearly seventy years. In those days C. J. B. Williams, Anthony Todd Thomson, W. H. Walshe, Murphy, and the great Liston were his teachers. Amongst other prizes at the medical school, he obtained the Fellowes gold medal for essays in clinical medicine, which were published in the *Medical Gazette*, 1845–50. He qualified as M.R.C.S. in 1843, and graduated M.B.Lond. with honours in 1844, gaining the degree of M.D. a year later. He held several resident appointments, and when obstetric house-physician to Dr. Murphy he found that his tastes naturally inclined to obstetrics and diseases of women.

Routh studied for some time in the hospitals of Paris, Prague, and Vienna, and in the Austrian capital he became

associated with that great obstetrician Ignaz Philipp Semmelweis, whose researches, whose struggles, and whose quarrels played so prominent a part in conferring an inestimable boon on womankind—the establishment of aseptic midwifery in lying-in hospitals. Semmelweis was junior obstetrician in the General Hospital at Vienna under a perfunctory medical officer, Professor Klein, and the mortality was appalling. Patients on finding themselves among the inmates of the dreaded clinic fell on their knees and with clasped hands begged to be allowed to return to their homes. We all know of the criminal carelessness which permitted students fresh from the adjacent *post-mortem* and dissecting rooms to examine women in labour, and of the relative immunity of the neighbouring midwives' clinic. We know also the inveterate obstinacy of the senior officer and of other physicians who would not agree to Semmelweis's self-evident propositions as to the cause of mortality in the students' clinic. The man who first vindicated Semmelweis in England was Routh. On November 28th, 1848, he read before the Royal Medical and Chirurgical Society a communication on the causes of the endemic puerperal fever in Vienna, to be found in the thirty-second volume of the Society's *Transactions*. Semmelweis was ever afterwards profoundly grateful to Routh, acknowledging his English pupil's enthusiastic support of his views in his work *Die Aetiologie, der Begriff und die Prophylaxis des Kindbettfiebers*, published in 1861. Four years after this monograph appeared Semmelweis died insane, as ill-fated as were the first anaesthetists. His British advocate had many years of useful life before him. The whole narrative of Semmelweis and his labours, and the support he gained from Routh in this country, is chronicled by Dr. Schürer von Waldheim in his work *—Ignaz Philipp Semmelweis, Sein Leben und Wirken*, issued in 1905.



George Edward Walker.

In 1855 Routh was elected Assistant Physician to the Samaritan Free Hospital, together with Dr. J. S. Stocker and Dr. Graily Hewitt. That institution had been founded a few years previously by Dr. William Jones and Henry Savage. For many years, when he became full Physician, Routh attended the Dorset House Branch of the Samaritan Hospital, where vaginal and perineal operations were performed, the old Lower Seymour Street building being reserved for Spencer Wells's ovariotomies. Before Routh joined the hospital in 1855 he had been for a few years in general practice, but, becoming private assistant to his former teacher, Murphy, he ultimately decided to develop as a specialist. Routh was one of the founders of the Obstetrical Society of London; he spoke at its inauguration on December 16th, 1858, was elected at once member of council, and was fated to be, with Drs. Lloyd Roberts and Kiallmark, one of the three original Fellows who survived that society when it became, in 1907, a section of the Royal Society of Medicine. It was then fused with the British Gynaecological Society, of which Routh was also an original Fellow. He took an active part in discussions and papers at both these societies, and in the Medical Society of London he was Orator in 1859 and Lettsomian Lecturer in 1864, when the subject he chose was the pathology, differential diagnosis, and treatment of fibrous tumours of the uterus. In 1875 he became President.

The best known of Routh's works published independently of societies is *Infant Feeding and its Influence, or the Causes and Prevention of Infant Mortality*, first published in 1860; it ran through three editions, and was also issued in the United States and translated into foreign languages. Routh was associated with several philanthropic institutions, and received honorary titles from foreign learned societies.

Recently Dr. Routh suffered from the infirmities of age; he was attended in his last illness by Dr. C. Theodore Williams. He leaves a widow, to whom he had been married fifty-six years, two daughters, and three sons, two of whom, Dr. Amand Routh, Obstetric Physician at Charing Cross Hospital, and Mr. Randolph Routh, Surgeon to the Bridgewater Infirmary, are members of their father's profession.

Dr. Routh was interred in Kensal Green Cemetery on Tuesday, February 23rd, after a memorial service had been held at St. Paul's, Portman Square, at which several of his colleagues were present, as well as the inmates of the Cripples' Home for Girls, to which institution he was Consulting Physician.

GEORGE EDWARD WALKER, F.R.C.S.Eng.,

SENIOR HON. SURGEON, ST. PAUL'S EYE AND EAR HOSPITAL, LIVERPOOL.

We regret to announce the death of Mr. George Edward Walker, F.R.C.S., which took place at Las Palmas, Grand Canary, on February 15th.

George Edward Walker was born in Wigan in 1839, and was educated at Wigan Grammar School and at Chester. In 1859 he entered University College Hospital, London, and obtained the diploma of L.S.A. in 1862 and of M.R.C.S. in 1863. After holding resident appointments at University College Hospital, the Brompton Hospital for Consumption, and the Manchester Royal Infirmary, he obtained the Fellowship of the Royal College of Surgeons of England by examination in 1869.

While in London he was attracted to the study of diseases of the eye, and worked for some time at the Royal London Ophthalmic Hospital, Moorfields, where he was clinical assistant to Sir William Bowman. On settling in Liverpool in 1870 he began a general surgical practice, but while waiting for a vacancy on the staff of one of the hospitals he took two small rooms in St. Paul's Square for the gratuitous treatment of the poor suffering from diseases of the eye or ear. The work grew rapidly, and soon, with the help of his father-in-law, the late Mr. William Nimmo, and others, the house was taken and turned into a public charity under the name of St. Paul's Eye and Ear Hospital. When the next vacancy occurred on the staff of one of the general hospitals he found that, as the only candidate holding the Fellowship, he was likely to be elected, but that under its rules he would not be allowed to hold two honorary hospital appointments. He was strongly tempted, therefore, to abandon his post at the newly founded hospital, but he refused to desert the committee who had shown their trust in him by founding St. Paul's Hospital, and he withdrew his candidature. He was rewarded by seeing St. Paul's Hospital, during his thirty-eight years' work there, grow from its small beginnings into a hospital of 50 beds, with a yearly attendance of nearly 10,000 patients. His heart was in his hospital work, and with the exception of brief holidays, he visited the institution daily until towards the end of last year, when ill-health compelled him to go abroad.

Other appointments which he held at the time of his death were those of Honorary Surgeon to the School for the Indigent Blind, and Honorary Consulting Ophthalmic

Surgeon to the David Lewis Northern Hospital. He was also sometime Honorary Ophthalmic Surgeon to the Royal Albert Edward Infirmary, Wigan; Honorary Surgeon to the Hospital for Skin Diseases, Liverpool; and Surgeon to the Southport Convalescent Home. He held the office of Vice-President of the Liverpool Medical Institution, and also that of Vice-President of the Lancashire and Cheshire Branch of the British Medical Association.

Always an original thinker, he disregarded fashion in surgery, and was often in advance of his time. He was one of the earliest advocates, if not the first, of the immediate ligature of the common carotid artery in intracranial aneurysm of the internal carotid; and in his book, *Essays in Ophthalmology*, published in 1879, he recorded a case successfully operated on in 1878. He wrote further on this subject in a paper on pulsating exophthalmos, in the *Ophthalmological Transactions*, 1887, and the *Lancet*, 1894; and in an address on Pulsating Exophthalmos, a Plea for Early Ligature, he recorded (with Mr. Chauncy Puzey) three more cases. He was a strong advocate of the free use of mercurial inunction in all deep inflammations of the eye, and recorded several remarkable cases of its efficacy in sympathetic ophthalmia.[1]

He worked hard in his spare time at the physiology and pathology of the eyes, often rising at dawn to work at the microscope, and advanced original theories, founded on his observations, on accommodation and on glaucoma in his articles on the function of the ciliary body, *Lancet*, 1885, and on glaucoma.[2] He had a great respect for the iris, and was a constant opponent of indiscriminate iridectomy; in glaucoma he preferred his own operation of hyposcleral cyclotomy, which he described in a paper in the *Ophthalmological Transactions*, 1884. He devised operations for the release of synechiae, both anterior and posterior, of the iris, and described the former in a paper in the *Lancet*, 1885, but the operation in which he took the greatest pride was that for corneal ulceration, described under the name of kerotomy in an article in the *Liverpool Medico-Chirurgical Journal* for 1889. His operations have stood the test of time and are in daily use in the practice of St. Paul's Hospital. Kerotomy, in particular, has proved a most successful operation in the treatment of corneal inflammation.

Mr. Walker was a man of the highest integrity, who, under a somewhat severe and brusque exterior, carried a warm heart filled with generous sympathies. His home life was an ideal one, and he was a true friend. He was deeply interested in the School for the Blind, and the afflicted inmates were always the objects of his tender solicitude. In him they have lost a friend who was ever foremost in defending them whenever they needed a champion.

He married in 1870 Louise, daughter of William Nimmo, cotton broker, of Birkdale, and leaves his widow, two daughters, and four sons, of whom one is in the medical profession, and has been his assistant for the past seven years.

A memorial service was held on February 23rd at the Church for the Blind, Liverpool, of which he had been a warden for many years, and an eloquent and appreciative address was delivered by the Chaplain, the Rev. T. W. M. Lund, who had been closely associated for many years with Mr. Walker, both in the School and the Chapel for the Blind.

HENRY E. CLARK, C.M.G., M.R.C.S., F.F.P.S.G.,

FORMERLY PROFESSOR OF ANATOMY ST. MUNGO'S COLLEGE, GLASGOW.

THE death from pneumonia, after a short illness, of Mr. Henry E. Clark, formerly Surgeon to the Royal Infirmary, Glasgow, has removed a man who was prominent in the medical life of that city, and whose loss is felt by many as a personal bereavement.

Henry E. Clark was born at Wootton, in Warwickshire, in 1845, and received his early education in the Grammar School at Stratford-on-Avon. His medical studies were carried on in the old Andersonian University of Glasgow, and he took the Scottish Conjoint Diploma in 1870. One year later he became a M.R.C.S.Eng., and five years later joined the Faculty of Physicians and Surgeons of Glasgow. After acting as Resident Physician and Surgeon he became attached to the Royal Infirmary as Dispensary Surgeon, and was appointed also to the Eye Infirmary as Assistant Surgeon. In due course he was promoted to full Surgeonships in both these institutions, but became more particularly associated with the Royal Infirmary, in which he served as Surgeon until he retired in 1906 on account of the age limit.

In the earlier stage of his career Mr. Clark was well known as a teacher of anatomy. He was appointed Lecturer on Anatomy in the old Glasgow Royal Infirmary Medical School in 1876, and taught that subject there as first Professor of Anatomy after it became the St. Mungo's College some twenty years ago. In 1892 the Surgery Chair in St. Mungo's College fell vacant, and at his request he was transferred to the vacant post, and commenced to lecture on surgery. This post he held with much acceptance until he retired under the age limit.

Mr. Clark made numerous contributions to medical periodicals, and edited the ninth, tenth, and eleventh editions of Wilson's *Anatomists' Vade Mecum*, one of the most popular students' textbook of its time. For some time he also edited the *Glasgow Medical Journal*.

He took great interest in the local medical societies, and was a constant and enthusiastic attendant, and frequently took part in debates. At various times he occupied the post of President in the three chief medical societies of Glasgow. He also filled with great acceptance the position of President of the Faculty of Physicians and Surgeons from 1903 to 1905.

At the time of the South African war he was requested to go out and take medical charge of the Scottish National Red Cross Hospital, which on its arrival at the seat of war was dispatched at once to Kroonstad, Orange River Colony This hospital was the first medical assistance to reach this place after the town had been taken by Lord Roberts. The hospital did a great deal of valuable work, and for his services Dr. Clark was mentioned in dispatches. On returning home he was gazetted C.M.G. Among other honorary posts which he held was that of Honorary Associate of the Order of St. John of Jerusalem, and in 1905 he was elected an Honorary Fellow of the Royal College of Surgeons of Edinburgh.

WILLIAM PARSON, M.R.C.S., M.S.A.,

GODALMING.

THE death on February 8th, in his 75th year, at his residence in Godalming, of Mr. William Parson will be the cause of great regret to a large number of friends and old patients. He was the third generation of the same family who occupied the house in which he died, the practice having been originally founded by his grandfather. He received his early education at St. Paul's School, Portsmouth, and afterwards entered the medical faculty of University College; he was a resident pupil with the late Sir William, then Dr., Jenner, and this association led to a lifelong intimate friendship. He obtained the diploma M.R.C.S. in 1855, and that of L.S.A. in 1856. He then held for some time the appointment of house-surgeon at the Hospital for Sick Children, Great Ormond Street, afterwards settling in Haslemere; in 1858, however, owing to his father's illness, which soon terminated fatally, he removed to Godalming, where he long enjoyed a large private practice. He was the first medical officer of health for Godalming and the neighbouring part of the county, a post which he held for twenty-seven years. He was for twenty-eight years Medical Officer to the Hambledon Union Workhouse, and Public Vaccinator, and was for some years Deputy Coroner for West Surrey. He entered the Town Council of Godalming in 1864, and in 1866 served the office of Mayor. Subsequently he was nominated Justice of the Peace for the borough. He took keen interest in the affairs of the Society of Apothecaries of London; having served as Junior and Senior Warden, he was elected Master in 1902–3, and, after passing the chair, maintained his interest in the affairs of the society, insisting upon attending meetings, even in inclement weather, at no slight risk to his health. Failing health induced him very largely to diminish his work in 1900, and shortly afterwards he retired altogether from practice.

Mr. Parson gave the whole of his energy to his profession, never shirking any call made upon him, though it might be at the loss of his own health and comfort. He

[1] *Ophth. Trans.*, 1884.
[2] Ibid., 1887.

was a typical example of the high-principled, conscientious, kind-hearted, self-sacrificing country doctor, to whom the public owe so deep a debt of gratitude. His goodness to the poor was continuous and unassuming, and he was held in high esteem by rich and poor alike. He leaves a widow and two daughters to mourn his loss. The funeral, which took place at Godalming parish church on February 12th, was attended by the Mayor and other members of the Corporation, by many members of the profession, as well as numerous other friends, including representatives of the Society of Apothecaries.

THOMAS CARLYLE PARKINSON, M.D. (Sydney).

Both in this country and in his native land, Australia, the friends of Dr. Thomas Carlisle Parkinson will hear with deep regret of his untimely death, which occurred on February 4th.

Dr. Parkinson had recently been appointed a member of the Commission for the Investigation of Plague in India, and was working at the isolated laboratories at Elstree, placed at the disposal of the Commission by the Lister Institute. He was engaged upon an experimental inquiry into protective inoculation against plague, and in the course of his experimental work he unfortunately contracted an accidental infection, and died after a short illness from pneumonic plague.

Dr. Parkinson's death terminates a career which gave every promise of great distinction. He started his medical studies in 1901 at the University of Sydney, New South Wales, and in each of the five years of his course he gained first class honours and the premier place. He graduated in 1906, and was awarded the university medal for special distinction. During his undergraduate career he also obtained the Renwick Scholarship for Natural Science and Comparative Anatomy and the John Harris Scholarship for Anatomy and Physiology. In 1906 he held the position of Resident Medical Officer to the Royal Prince Alfred Hospital, Sydney; in 1907 he was Resident Pathologist to the same hospital, and in 1908 was for a time Junior Medical Officer at Callan Park Hospital for the insane.

Dr. Parkinson early showed his bent for scientific investigation, and both as a student and during his post-graduate work at Sydney contributed several papers to the *Journal* of the University of Sydney Medical Society. In April, 1908, he was awarded the James King Travelling Scholarship and came to this country to continue his studies, and worked at the Lister Institute until October, when he was appointed to a position on the Indian Plague Commission.

Dr. Parkinson was possessed of an amount of reserve which prevented him from making friends quickly. His acquaintances will remember him as a keen worker, but his comrades realize that they have lost a good and trusted friend. He lost his life striving in the interests of others, doing a man's work as a man should.

We have to record with much regret the death of Mr. Alfred Temple Spanton of Birkenhead. Mr. Spanton was ill for a few days only, death being due to heart failure following pneumonia. He was the eldest son of Mr. W. D. Spanton, F.R.C.S., of Hanley, consulting surgeon to the North Staffordshire Infirmary, and for many years a member of the Central Council of the British Medical Association. Mr. Alfred Temple Spanton, who had just completed his 33rd year, was educated first at Cheltenham College, and then at Trinity College, Cambridge, where he graduated B.A. with honours in 1897, and M.A. in 1902. After commencing his medical education as a pupil at the North Staffordshire Infirmary, and also as a student at Addenbooke's Hospital, Cambridge, he entered the medical school of St. George's Hospital. He took the diploma L.S.A. in 1900, and that of L.R.C.S.Edin. in 1906. He was for some time Resident Surgeon at the Leeds Dispensary, and subsequently Resident Medical Officer at the Hulme Dispensary, Manchester. He began to practise in Birkenhead about eighteen months ago, and being thoroughly trained in his profession, and a man of gentle disposition, conscientious, and painstaking in everything he did, would undoubtedly have attained success had his life been spared. The funeral, which took place on February 18th, afforded an opportunity for many tributes of respect to be paid by friends and patients. In the Potteries, where Mr. W. D. Spanton is so well known, great sympathy is felt both with him and with his family in his sad bereavement, and this feeling will be shared by all members of the Association who have had the advantage of knowing Mr. Spanton.

Universities and Colleges.

UNIVERSITY OF LONDON.

Appointment of a Royal Commission.

The King has been pleased to appoint a Royal Commission on the subject of university education in London.

The terms of the reference are:

> To inquire into the working of the present organization of the University of London, and into other facilities for advanced education (general, professional, and technical) existing in London for persons of either sex above secondary school age; to consider what provision should exist in the metropolis for university teaching and research; to make recommendations as to the relations which should in consequence subsist between the University of London, its incorporated colleges, the Imperial College of Science and Technology, the other schools of the University, and the various public institutions and bodies concerned; and further, to recommend as to any changes of constitution and organization which appear desirable. In considering these matters, regard should also be had to the facilities for education and research which the metropolis should afford for specialist and advanced students in connexion with the provision existing in other parts of the United Kingdom and of his Majesty's Dominions beyond the Seas.

The Chairman of the Commission is the Right Hon. R. B. Haldane, K.C., M.P., and the members are:

The Right Hon. Viscount Milner, G.C.B., G.C.M.G.
The Right Hon. Sir Robert Romer, G.C.B.
Sir Robert L. Morant, K.C.B.
Mr. Laurence Currie, M.A.
Mr. W. S. M'Cormick, M.A., LL.D.
Mr. E. B. Sargant, M.A.; and
Mrs. Creighton.

The Joint Secretaries to the Commission are Mr. J. Kemp and Mr. H. F. Heath.

Mr. Haldane, it will be remembered, was chairman of the committee the report of which led to the establishment of the Imperial College of Science and Technology, and is not merely a politician who has shown an interest in science, but a statesman who is also a man of science. He has consistently supported the new university movement in England, and has shown particular interest in the organization of university teaching in Liverpool and Bristol; of the needs of London he gained some special experience while holding for two years the office of vice-president of University College.

Viscount Milner, who during his long and distinguished career as Under Secretary for Finance in Egypt, as Chairman of the Board of Inland Revenue, and as High Commissioner for South Africa, has displayed remarkable powers as an organizer, gave particular attention to educational problems while occupying the last-named office. He has a slight direct connexion with the University of London, for he was a student at King's College before proceeding to Oxford.

Sir Robert Romer, who was senior wrangler and Smith's prizeman in 1863, was for a short time professor of mathematics at Queen's College, Cork, before being called to the Bar. After holding a Chancery judgeship for nine years, he was for the next seven Lord Justice of Appeal, only retiring three years ago.

Sir Robert L. Morant, K.C.B., has been Permanent Secretary to the Board of Education since 1903.

Mr. Laurence Currie, M.A., is a member of the banking firm of Glyn, Mills, Currie and Co.

Mr. W. S. M'Cormick, M.A., LL.D., Secretary to the Carnegie Trust for the Universities of Scotland, was at one time Professor of English in University College, Dundee.

Mr. E. B. Sargant, M.A., was Educational Adviser to Lord Milner in the Transvaal.

Mrs. Creighton, who is the widow of the late Bishop of London, and herself a historian of distinction, has, no doubt, been appointed in consideration of the large number of women undergraduates and graduates of the University of London.

Of the joint secretaries, Mr. J. Kemp is a barrister having some experience in London government, and Mr. H. F. Heath, formerly Academic Registrar of the University, is now Director of Special Inquiries and Reports to the Board of Education.

Degrees.

The following candidates passed the Preliminary Scientific Examination for internal and external students, January, 1909, in the subjects indicated:

Part I: Inorganic Chemistry, Experimental Physics, and Biology.

Inorganic Chemistry and Experimental Physics.—*P. A. Dargan, King's College; *F. R. Fletcher, London Hospital; *S. A. Forbes, London Hospital; *H. L. G. Foxell, University College; L. Kingdon, King's College: *E. D. Lindow, King's College;

*Helena R. Lowenfeld, Ladies' College, Cheltenham, and London (R. F. H.) School of Medicine for Women; *A. G. Maitland-Jones, Taunton School and London Hospital; A. N. Minns, private study; J. E. Pearce, Clifton College and Brighton Technical College; *A. J. E. Smith, Guy's Hospital; *H. Vickers, St. Mary's Hospital; *J. G. Wardrop, University College.

Inorganic Chemistry and Biology.—‡P. V. Davies, University College, Cardiff; S. S. B. Harrison, Guy's Hospital; ‡A. M. Jones, Epsom College; D. M. MacManus, Guy's Hospital; ‡Refna Mallet, London (R. F. H.) School of Medicine for Women; ‡Martha Patterson, London (R. F. H.) School of Medicine for Women; ‡F. J. R. Simpson, King's College; †H. J. Wallace, University College.

Experimental Physics and Biology.—F. V. Bevan-Brown, Canterbury College, New Zealand; †R. C. C. Clay, Epsom and King's Colleges; T. W. David, University College, Cardiff; †W. L. G. Davies, Guy's Hospital; †F. H. Dodd, Guy's Hospital; †W. L. E. Reynolds, Guy's Hospital; †L. M. Smith, Guy's Hospital.

Inorganic Chemistry only.—*‡R. M. Beath, Queen's College, Belfast; *‡K. Biggs, London Hospital and private study; *Ursula P. Blackwell, London (R. F. H.) School of Medicine for Women; Gwendolyn M. Burns, London (R. F. H.) School of Medicine for Women; *‡Alice H. Christie, University College, Bristol; E. J. Coombe, Royal Albert Memorial, University College, Exeter; *‡Pattie R. Elliott, University College, Nottingham, and London (R. F. H.) School of Medicine for Women; *H. H. Fisk St. Mary's Hospital; *‡G. A. Gassmann, London Hospital; *‡E. A. M. J. Goldie, University College; J. W. Heekes, Charing Cross Hospital; *‡F. W. Kealey, St. Bartholomew's Hospital; *‡H. Smith, Charing Cross Hospital; *‡T. R. Snelling, London Hospital; ‡B. N. Walmsley. University College, Bristol; *‡J. R. M. Whigham, Westminster City School and St. Mary's Hospital; *‡J. D. Wilkinson, St. Thomas's Hospital; *‡W. R. Wilson, Epsom College; *‡W. P. Wippell, St. Bartholomew's Hospital.

Experimental Physics only.—*‡W. P. C. Abeyedeera, University College; *†G. M. Campbell, University College, Bristol; *†S. C. W. Iredale, St. Bartholomew's Hospital; *†Rustam Merwan Kharegat, University College; *†W. Leslie, Charing Cross Hospital; *R. W. Little, University College, Cardiff; B. L. StC. Miller, Victoria College; *†F. C. Robbs, St. Mary's Hospital; †S. H. Robinson, Guy's Hospital; *T. W. Robinson, London Hospital; *†J. A. Ryle, Guy's Hospital; *G. D. Shann, King's College; *†H. C. Viehoff, University of Liverpool; *†E. H. Walker, St. Thomas's Hospital; *†J. D. Wilkinson, St. Thomas's Hospital; *†R. Williams, London Hospital and private study.

Biology only.—†‡Margaret J. Armstrong, London (R. F. H.) School of Medicine for Women; †‡F. E. Daunt, St. Thomas's Hospital; J. K. Davies, University College, Cardiff; †‡G. D. Eccles, Guy's Hospital; †‡H. W. Evans, Guy's Hospital; †‡T. H. Evans, Birkbeck College, University Tutorial College, and private study; †‡J. T. E. Evans, St. Paul's and St. Mary's Schools; F. B. Gilhespy, University College; †‡D. T. Harris, private study; †‡R. O. H. Jones, private tuition; Gladys Matthews, Ladies' College, Cheltenham; †‡R. A. Preston, University of Leeds and private study; †‡L. N. Reece, Canterbury College, New Zealand, and St. Thomas's Hospital; E. A. Scott, University College; †‡A. R. Turtle, London Hospital; F. E. S. Willis, St. Bartholomew's Hospital; Siong Yew Wong, St. Thomas's Hospital.

* Has already passed in Biology.
† Has already passed in Inorganic Chemistry.
‡ Has already passed in Experimental Physics.

PART II: ORGANIC CHEMISTRY.

W. S. Armitage, St. Mary's Hospital; W. M. Ash, London Hospital; L. B. Baird, Victoria University of Manchester; J. C. P. Bayley, Manchester Technical School and private study; F. P. Bennett, St. Mary's Hospital; T. I. Bennett, Guy's Hospital; Mabel K. Bishopp, London (R. F. H.) School of Medicine for Women; G. J. Bowen, University College, Cardiff; O. N. W. Brown, King's College and Westminster Hospital; F. W. T. Clemens, University College, Bristol; R. Creasy, Guy's Hospital; L. G. Crossman, University College, Cardiff; J. M. Curé, Royal College of Mauritius and St. Bartholomew's Hospital; J. L. Davies, University College, Cardiff; R. D. Davy, London Hospital; J. de Silva, St. Mary's Hospital; G. R. Dobrashian, University College; V. W. Draper, Huddersfield Technical College and King's College; P. V. Early, University College; A. R. Elliott, Dulwich College and private study; W. A. Elliott, private study; T. L. Ellis, University College, Cardiff; Gertrude M. Flumerfelt, London (R. F. H.) School of Medicine for Women; C. E. A. Goddard, University College; A. Goodwin, University College; Olive G. M. Gray, London (R. F. H.) School of Medicine for Women; C. J. A. Griffin, University College; A. E. Hallinan, Charing Cross Hospital; D. M. Hanson, University College; G. M. Heiron, London Hospital; E. S. W. Hirsch, St. Mary's Hospital; M. Hocken, London Hospital; T. H. Holroyd, University of Birmingham; G. B. Jameson, Victoria University of Manchester and private tuition; Charlotte G. Judge, London (R. F. H.) School of Medicine for Women; Skéne Keith, Guy's Hospital; T. P. Kilner, Victoria University of Manchester; W. E. Kingdon, University of Sheffield; Dorothy C. Logan, University College, Cardiff; C. J. Marshall, University College, Cardiff; J. P. Mathews, University of Sheffield; V. E. Negus, King's College; S. Papadopoulos, St. Bartholomew's Hospital; C. J. H. Pearson, London Hospital; G. R. Pennant, University College, Cardiff; J. F. G. Richards, Victoria College, Wellington, New Zealand; A. E. Roberts, London Hospital; W. Robinson, Guy's Hospital; A. R. Sharrod, London Hospital; A. L. Shearwood, Guy's Hospital; Winifred C. Squires, London (R. F. H.) School of Medicine for Women; C. H. Thomas, St. Bartholomew's Hospital; Ursula Thompson, University College, Cardiff; C. E. Thornton, Middlesex Hospital; A. J. C. Tingey, University of Liverpool; J. A. Tsoie-A-Sue, London Hospital; J. Vaughan-James, University College, Cardiff; Honoria J. Wallace, London (R. F. H.) School of Medicine for Women and private tuition; F. C. Watson, University of Leeds; H. Webb, Guy's Hospital; P. Whitehead, King's College; E. W. Whiting, St. Bartholomew's Hospital; C. L. Williams, Plymouth Technical School and St. Bartholomew's Hospital; C. H. Wilson, University of Sheffield.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

THE arrangements for lectures at the Royal College of Physicians of London during the present year are as follows: The Milroy Lectures, on disinfection and disinfectants, will be given by Dr. R. Tanner Hewlett on March 2nd, 4th, and 9th; the Goulstonian Lectures, on some disorders of the cerebral circulation and their clinical manifestations, by Dr. A. E. Russell on March 11th, 16th, and 18th; the Lumleian Lectures, on rheumatic fever and valvular disease, by Dr. Norman Moore on March 23rd, 25th, and 30th; and the Oliver-Sharpey Lectures, on the rôle of reflex inhibition in the co-ordination of muscular action, will be given by Professor C. S. Sherrington, F.R.S., on April 1st and 2nd. The lectures will be given at the college at 5 p.m. on the dates mentioned.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

Fellowship Examination.

THE following candidates have passed the Primary Examination:

L. S. Machado, C. J. Bourke, A. H. Croly, T. Dowzer, J. T. Duncan, J. FitzGerald, J. Geraty, H. C. Gilmore, C. J. Kelly, P. H. M'Donough, P. J. Mockler, J. K. O'Byrne, T. F. O'Donnell, L. W. Roberts, C. D. K. Seaver, H. H. K. Sparrow, H. R. Tighe, V. Wallace.

The following have passed the Final Examination:

T. J. Brooke-Kelly, L.R.C.S.I.; C. L. G. Chapman, M.R.C.S.Eng.; J. F. Devane, B.Ch., Royal University; C. M. Goodbody, M.R.C.S.Eng., Captain I.M.S.; J. B. Hanafin, L.R.C.S.I., Lieutenant R.A.M.C.; J. W. Rutherford, L.R.C.S.I.; O. Smithson, M.R.C.S.Eng.

Dental Examination.

The following candidates have passed the Primary Examination:

E. R. Black, R. S. H. Drabble, L. S. O'Hare, J. M. Sherin, O. Trigge.

The following have passed the Final Examination:

W. S. Johnston, S. R. Macnamara, L. S. O'Hare, Israel Scher.

Public Health AND POOR-LAW MEDICAL SERVICES.

MEDICAL ORDERS GIVEN ON LOAN.

CONTEMPORARY, who is a district medical officer, writes that the relieving officer occasionally sends him medical orders to attend patients as paupers who are temporarily out of work or have no money to pay for attendance. Some of these orders are marked "On Loan," and the guardians are in the habit of recovering from these people and "keep the money," and so get themselves paid for the doctor's services. He asks whether the guardians are right either legally or morally, and whether the medical officer is entitled to any fee which the guardians may afterwards receive.

*** We are not prepared to say what is the strict law on this matter, but we consider that the guardians, even if they possess the power to act as described by our correspondent, show a very illiberal spirit in so doing, as by their action they not only free themselves of all cost, but make an actual profit out of poverty at the expense of the district medical officer. This surely must be contrary to the spirit of Poor Law legislation, past or prospective.

Hospitals and Dispensaries.

THE ROYAL PORTSMOUTH HOSPITAL.

THE annual meeting of the Royal Portsmouth Hospital was held at the Town Hall, Portsmouth, on February 23rd, Sir George Couzens, K.L.H., presiding. It was reported that steady progress was the main feature in the record of the year's work. The year had marked the completion of the new children's wards recently opened by Princess Victoria of Schleswig-Holstein, the permanent endowment of three cots, and the erection of a new out-patient department through the splendid liberality of an anonymous donor. A further step towards the complete reconstruction of the hospital had been taken by obtaining plans for the erection of a nurses' home. During the year 15,292 persons, of whom 1,574 were in-patients, received treatment. The daily average number of beds occupied during the year was 124.2, and the average cost per occupied bed was £55 17s. 1d. Dr. J. Ward Cousins and Mr. Henry Rundle were elected vice-presidents in recognition of the valuable services rendered by them as surgeons to the hospital.

BRADFORD ROYAL EYE AND EAR HOSPITAL.

THE fifty-second annual meeting of this hospital was held in Bradford on February 19th, the Lord Mayor presiding. Dr. Bronner, in responding to a vote of thanks to the medical officers, said that the hospital suffered from overcrowding and lack of funds. Some £5,000 to £10,000 was required for extensions, and that amount ought to be easily raised in Bradford. He regretted that the question of the medical treatment of school children had been brought forward so rapidly, before means could be devised to get the work done at the hospitals. A great deal of the work at the school clinic ought to be done at the hospitals, otherwise there would be overlapping.

Letters, Notes, and Answers.

BRITISH MEDICAL ASSOCIATION AND BRITISH MEDICAL JOURNAL

THE offices of the British Medical Association and of the BRITISH MEDICAL JOURNAL are at 429, Strand, London.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

FOREST asks for a respectable home for a woman about 67 years of age who has cardiac disease but is able to go out. A year or more has elapsed since she had a bad attack; 10s. 6d. to 12s. 6d. per week could be paid.

A CASE FOR DIAGNOSIS.

B.S. asks for advice in the treatment of a man, aged 35, who has for seven years suffered from acute colicky pains and slight abdominal distension, the attacks terminating with the passage of large quantities of flatus. About four years ago the appendix was removed, as the attacks were attributed to appendicular colic; nothing abnormal was then found in the abdomen. He still has an acute attack about every ten days, lasting for about twenty-four hours, but is seldom really free from pain. The attacks, which appear to be growing worse, are not accompanied by diarrhoea or constipation, and he passes little mucus—certainly not enough to justify the term mucous colitis.

BOOKS FOR POPULAR LESSONS.

B. wishes to know of a suitable book or books dealing with scientific subjects in a popular style, and suitable for addresses to men attending Sunday morning adult school.

*** For the purpose of series of addresses to be developed to a men's Sunday school we think the following would prove useful: *Physiography: An Introduction to the Study of Nature.* By T. H. Huxley. Revised by R. A. Gregory. 1904. 4s. 6d.; Sir Robert Ball's *Story of the Heavens* (London: Cassell and Co. 1893. 10s. 6d., but which can be obtained in sixpenny parts); and Lord Avebury's (Sir John Lubbock's) books on *Ants, Bees, and Wasps*, etc. Also *The Body at Work*, by A. Hill, M.A., M.D., F.R.C.S. (London: E. Arnold. 1908. 16s.).

ANSWERS.

AUSTRALIAN.—There are a good many country places in England where a man might live with care and get his children well educated on the income mentioned. Our correspondent's best plan would be to return home and look out for himself.

REFRACTION TEST CASES.

S. T. B.—The usual full-size case for refraction work contains double sets of spheres, + and −, in quarters for 0.25 to 3.0, then halves from 3 to 6, dioptres for 6 to 16, and two dioptres for 16 to 20; cylindrical lenses, double sets, and + − in quarters for 0.25 to 3.0, and halves for 3 to 6. Besides these there are prisms, coloured glasses, diaphragms, etc., and trial frames. All lenses should be mounted. Boxes containing fewer lenses than those indicated are not to be recommended, while unmounted lenses are constantly getting broken.

M.D. IN TROPICAL MEDICINE.

CAPTAIN I.M.S.—The scope of the paper in general medicine at the examination for the degree of M D. in Tropical Medicine in the University of London is higher than that required for the M.B. The candidate must pass in the paper on general medicine as well as that on tropical medicine. The practical examination is a searching one, on much the same lines as the practical examinations at the tropical schools. We believe that without a special course a candidate would have little chance of success. Under certain circumstances exemption may be obtained from a part or the whole of the examination by presenting a thesis or published work embodying an independent research in tropical medicine. In addition to the works by Manson on *Tropical Diseases*, Rogers on *Fevers in the Tropics*, Stephens and Christophers's *Practical Malaria*, James and Liston's *Anopheles Mosquitos*, and the second part of the second volume of *Allbutt's System of Medicine*, to which our correspondent refers, he might consult the following: Scheube's *Diseases of Warm Climates*, translated by P. Falke, edited by J. Cantlie, F.R.C.S., second edition (London: J. Bale, Sons, and Danielsson. 1903. 30s.); Daniels and Stanton's *Studies in Laboratory Work*, second edition (London: John Bale, Sons, and Danielsson. 1907. 16s.); Simpson's *The Principles of Hygiene in Tropical and Subtropical Countries* (London: J. Bale, Sons, and Danielsson. 1908. 15s.); Hewlett's *Manual of Bacteriology*, third edition. London: J. and A. Churchill. 1908. 10s. 6d.); Emery's *Clinical Bacteriology and Haematology*, third edition (London: H. K. Lewis. 1908. 7s. 6d.); Theobald's *Monograph of the Culicidae of the World* (London: Longmans, Green, and Co. 1903. 21s.); and Austen's *Monograph on the Tsetse Flies* (London: British Museum Natural History. 1903. 15s.).

LETTERS, NOTES, ETC.

X-RAY TREATMENT OF VENEREAL SORES.

MR. C. F. MARSHALL (London, W.): With regard to the treatment of venereal sores by the *x* rays, described by Major French in the BRITISH MEDICAL JOURNAL of February 20th, I may mention that a case of severe phagedenic chancre (syphilitic) was brought to me a few days ago after treatment by the *x* rays. The patient had seven exposures in the course of two weeks. In this case the phagedena had destroyed a considerable portion of the glans penis and had caused a urethral fistula behind the glans. As mercurial and local treatment was producing no effect, the *x* rays were recommended by another surgeon. The only result was to cause some increase in the pain; there was no effect on the phagedenic process whatever. Considering that venereal sores, whether phagedenic or not, usually yield to simpler methods of treatment, I think that the use of such a therapeutic agent as the *x* rays—the action of which is even now little understood, and the effects of which are often uncertain and sometimes harmful—in these conditions is contra-indicated.

DR. H. D. MCCULLOCH (London, W.) writes: In the note appearing under "Memoranda," p. 464, of the BRITISH MEDICAL JOURNAL of February 20th, Major H. C. French remarks that he has no knowledge of *x* rays having ever been used in the above class of cases. I beg leave to refer Major French to an abstract in the EPITOME of the JOURNAL of February 16th, 1907, Paragraph 89; also to a paper contributed by me in the JOURNAL of October 17th last, in which an attempt was made to elucidate the bio-chemical action resulting in the induction of a specific immunity when the *x* rays are caused to influence the lymphoid or lymphatic structures which are functionally involved.

MEDICAL FOOTBALL.

COLD weather during the past week prevented the playing of any medical fixtures of importance. Among the matches postponed was that between Middlesex and St. Thomas's which was to have been replayed last Monday. The following table shows the positions of the various hospitals in the Cup Tie:

First Round.	Second Round.	Semi-final.	Final.
1.—London / St. Mary's	London		
2.—Charing Cross / University	Charing Cross	London	
3.—Guy's / Westminster*	Guy's†	Guy's	Guy's
4.—Middlesex / St. Bartholomew's	Middlesex‡		
5.—St. Thomas's / King's College	St. Thomas's	Winner†	Winner

* Scratched. † A bye.

‡ This match, played and drawn, to be replayed on March 1st.

The Prince of Wales was present on Wednesday at the Richmond Athletic Ground, when the London Hospital met Guy's, to fall to the latter by a goal and a try (8 points) to nothing. The captains of the fifteens, Mr. L. B. Stringer (Guy's) and Mr. J. M. Mehaffey (London) were presented to His Royal Highness, and the teams lined up and gave three hearty cheers. Excellent play on the part of both hospitals followed, and Guy's victory was due to superior organization. Their backs played a splendid game, and to Stringer in the three-quarter line the first score was due. Batchelor, the London back, had relieved with a punt far down the field, only for the ball to fall into Stringer's hands. As soon as he got in his kick he followed up keenly, and, relying on his speed, retrieved the ball and raced over the line. During the second half Guy's were hard pressed and owed their immunity to the brilliant defensive play of their backs, who, by a masterpiece of combination, scored a clever try. Stokes touching down about five minutes before time. The final will be played between Guy's and the winners of Middlesex and St. Thomas's.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Eight lines and under	0	4	0
Each additional line	0	0	6
A whole column	2	13	4
A page	8	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication; and, if not paid for at the time, should be accompanied by a reference.

N.B.—It is against the rules of the Post Office to receive letters at *Postes Restantes* addressed either in initials or numbers.